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ABSTRACT

This publication includes reports of research on children in progress or recently completed from June 1970 through February 1971. Each entry includes information concerning the investigator, purpose, subjects, methods, duration, cooperating groups, and findings (if available). The reports are listed under several topical headings: (1) long-term research, (2) growth and development, (3) special group of children, (4) the child in the family, (5) socioeconomic and cultural factors, (6) educational factors and services, (7) social services, and (8) health services. (BRT)

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RESEARCH RELATING TO CHILDREN

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Bulletin 27

Prepared by

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June 1970-February 1971

ERIC Clearinghouse on Early Childhood Education

We express appreciation to Barbara O'Neil for indexing and technical assistance, to Mima Spencer for editorial assistance, and to Barbara Harth and Jim Ennis for secretarial assistance. Our thanks also to the rest of the gang at ERIC/ECE for their help at various periods of stress.

This publication was prepared pursuant to contract OCD-CB-2, Children's Bureau, Office of Child Development, U.S. Department of Health, Education, and Welfare.

FOREWORD

This bulletin is like previous ones in that it is prepared for those whose work is aided by information on research relating to children. As such, it includes reports of research now in progress or recently completed.

For 20 years these bulletins were prepared at the Clearinghouse on Child Life of the Children's Bureau. With this issue, the responsibility for the bulletins has been transferred to the ERIC Clearinghouse on Early Childhood Education (ERIC/ECE), under a grant from the Children's Bureau. Preparation of this bulletin represents one of the many information dissemination activities of ERIC/ECE.

As the contents of Bulletin 27 were assembled, we inspected a sample of bulletins of previous years, hoping to observe trends and changes in the bulletins' contents and research topics. We found that such trends were difficult to discern; they are obscured by the changes in terminology and content category structure. For example, the Table of Contents in 1951 included a category called "school curricula," under which there were 11 entries. In 1956 that category was called "curricula and teaching methods"; by 1961 that category had disappeared, and the four entries indexed as "curriculum" were spread throughout four separate content categories. In 1966 "curriculum" is not even used in the subject index. In this issue it becomes a subheading under education with eight entries. Similar patterns of changing content categories can be seen for research topics related to intellectual growth and development, suggesting substantial fluctuations in our conceptualizations of developmental problems in this area. These tentative observations convey a picture of the fields of research relating to children as active growing areas grappling with complex issues that are often resistant to definition.

Readers' reactions to this Bulletin, its usefulness and possible improvements will greatly assist us in the preparation of future issues.

Lilian G. Katz, Ph.D.
Director, ERIC/ECE
University of Illinois
Urbana-Champaign

PREFACE

Bulletin 27 includes reports of research in progress or recently completed research. With the exception of Long-term Research, it does not repeat studies included in Bulletins 3 through 26, even though they may still be continuing. This issue, therefore, does not reflect all research relating to children in a given period, but only that which was first reported to the Clearinghouse June 1970 through February 1971.

Publication references and plans are cited by some of the investigators, but the Clearinghouse does not maintain bibliographic information on published reports of the studies. The reader, who wishes to obtain further details about any of the projects reported, should check professional journals in the appropriate field or write directly to the investigator.

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LONG-TERM RESEARCH

27-AA-1 LONGITUDINAL STUDY OF CHILD GROWTH AND DEVELOPMENT

Investigator(s): Lester W. Sontag, M.D., Director, Fels Research Institute for the Study of Human Development, Antioch College, Yellow Springs, Ohio 45387.

Purpose: To study adult personality, adjustment, and aging processes of subjects whose health, growth, personality development, and environment have been studied since birth.

Methods: The program included a study of the aging processes of the subjects' parents in relation to physical and biochemical measures made earlier. It will include studies of parental childrearing practices in the same families for two generations, constancy of autonomic-response patterns to stress from childhood to young adulthood, and the relationship of response patterns to psychosomatic disorders in adulthood. Blood lipids in relationship to body composition and change in composition will also be studied.

Cooperating groups(s): Public Health Service, U. S. Department of Health, Education, and Welfare.

27-AA-2 LONGITUDINAL CROSS-CULTURE STUDY OF HUMAN DEVELOPMENT

Investigator(s): Harben Boutourline Young, M.D., Research Associate in Human Growth and Development, Harvard School of Public Health, Boston, Massachusetts 02115.

Purpose: To observe the long-term effects of environment on growth and health; i.e., the influence of environmental factors upon physical and mental development, and their mode of action and interaction with genetic endowment.

Subjects: Several hundred males, studied from prepuberty, each with four grandparents from the same geographical zone of southern Italy, who now live in the markedly different cultures of Boston, Rome, and Palermo; other groups of 100 girls and several hundred boys in Florence, Italy; and 20[illegible] girls in Boston.

Methods: Repeated medical, anthropometric, and psychological examinations have been conducted, family interviews held (to evaluate childrearing practices), and nutritional and sociocultural data have been collected. Current work under analysis includes a cross-cultural study of moral values; studies of biological age and its estimation; estimation of socioeconomic status across cultures; and a study of changing hemoglobin values in adolescent males. Work that involves further and continuing data collection includes prediction of growth variables; a cross-cultural study of creativity and its environmental determinants; a study of left-handed subjects in the relatively permissive and intolerant cultures of the United States and Italy; and an analysis of menstrual symptoms in both cultures.

Duration: 1956-continuing.

Cooperating groups(s): Grant Foundation; Wenner Gren Foundation; Olivetti Corporation; Universities of Florence, Rome, and Palermo.

Publications: *Perceptual and Motor Skills*, 1966, 23, 35-40; *Bulletin of the International Epidemiological Association*, 1965, 12, 1936; *American Journal of Diseases of Children*, 1963, 106, 568-577.

27-AA-3 BIOLOGIC AND ENVIRONMENTAL FACTORS IN CHILD DEVELOPMENT

Investigator(s): Jacob Yerushalmy, Ph.D., Professor of Biostatistics, University of California School of Public Health, Berkeley, California; Stephen Thomas, M.D., Director, Department of Obstetrics and Gynecology; and Edgar Schoen, M.D., Director, Department of Pediatrics, Kaiser Foundation Hospital, Oakland, California 94611.

Purpose: To investigate the relationship of parents' biologic, genetic, and environmental influences (including events during pregnancy, labor, and delivery) to the normal and abnormal development of offspring.

Subjects: Members of the Kaiser Foundation Health Plan (a prepaid medical care program), who reside in the San Francisco-East Bay area.

Methods: Expected byproducts of the investigation are the relationships of factors studied to (1) wasted pregnancies in the forms of early fetal death, perinatal mortality, infant and child mortality; and (2) estimates of the incidence of different types of abnormalities. The study is a prospective, longitudinal type involving both mother and child. Gravidas in the Department of Obstetrics andchildren in the Pediatric Department are observed, interviewed, and given laboratory examinations. Physicians' observations are systematized uniformly. Special efforts are made to obtain information on members of the study who do not return to the plan for medical care. Detailed growth curves for children, ages birth to 6, and estimates of illnesses and injuries in infancy and the preschool child will be derived on a longitudinal basis.

Duration: July 1959-indefinite.

Cooperating group(s): Permanente Medical Group; Kaiser Foundation Research Institute.

Publications: *Journal of Pediatrics*, August, 1967, 71, (2), 164-172; *Pediatrics*, 1967, 39, 940-941; *American Journal of Obstetrics and Gynecology*, February 15, 1964, 88, (4), 505-518.

27-AA-4 THE BERKELEY, CALIFORNIA GROWTH STUDY

Investigator(s): Dorothy H. Eichorn, Ph.D., Research Psychologist, Institute of Human Development, University of California, Berkeley, California 94720.

Purpose: To study the mental and physical growth of normally healthy persons from birth to the present.

Subjects: 60 full-term, healthy newborns, born in Berkeley hospitals in 1928 to 1929 of white, English-speaking parents; and 140 offspring of these subjects, ages birth to 20, seen irregularly.

Methods: The same data, appropriate for age, were collected for the subjects and their offspring. Beginning in the first week of life, tests of mental and motor development, pediatric examinations, and interviews were conducted at frequent intervals during growth. At all visits, inquiries were made concerning current health and recent illnesses. Anthropometrics, body photographs, and skeletal X-rays were taken at most ages. Socioeconomic data were collected. Studies of the physical aspects of growth include analyses that compare health histories with physical growth and with skeletal maturation. Emotional and other personality variables are being studied for consistency, and in various interrelations with maternal behavior in infancy, birth histories, socioeconomic status, and intellectual and physical growth.

Duration: 1928-continuing.

Publications: *American Psychologist*, 1968, 23, (1), 1-17; *Monograph of the Society for Research in Child Development*, 1963, 28; *Growth Diagnosis*. Chicago: University of Chicago Press, 1959.

27-AA-5 GROWTH OF PSYCHOPHYSIOLOGICAL PATTERNS IN INFANCY

Investigator(s): Wagner H. Bridger, M.D., Associate Professor of Psychiatry; and Beverly Birns, Ph.D., Assistant Professor of Psychology, Albert Einstein College of Medicine, Yeshiva University, Bronx, New York 10461.

Purpose: To investigate the origins and course of development of individual differences in neonates.

Subjects: Normal, healthy, full-term babies, 2 to 5 days old, born at Bronx Municipal Hospital Center.

Methods: A neonatal behavioral profile, which was established in previous studies, will be used. The profile includes behavioral and heart rate ratings on excitation, soothing, feeding, sleep, and nonstimulus periods of observation. Neonates will be followed at ages 2 weeks, and 1, 2, 3, and 4 months, to measure the stability of early appearing traits and their relation to later behaviors. Data will be analyzed with respect to stability of early appearing behaviors and the relationship between neonatal behavior and maternal and birth history.

Duration: 1966-continuing.

Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: In Grant Newton and Seymour Levine (Eds.), *Early Experience and Behavior; Psychobiology of Development*. Springfield, Illinois: Charles C. Thomas, 1968; *Psychosomatic Medicine*, 1966, 28, 316.

27-AA-6 LONGITUDINAL STUDY OF DENTOFACIAL, SKELETAL, PHYSICAL GROWTH, AND NUTRITION OF CHILDREN

Investigator(s): Bhim S. Savara, D.M.D., M.S., Chairman, Child Study Clinic, University of Oregon Dental School, Portland, Oregon 97201.

Purpose: To study the dentofacial growth of children, standards of nutrition, caries increment related to nutrition, assessment and skeletal age related to facial growth, and variations in physique and its effect on dentofacial growth; and to determine heritable traits.

Subjects: 400 children, including 40 pairs of twins, ages 3 to 18, observed for periods of 3 to 10 years.

Methods: Cephalograms, hand, wrist, and calf X-rays, intraoral X-rays, study casts, anthropometric measurements, and photographs are taken; and oral examinations are administered to the subjects. A 1-week food diary is recorded. Children are examined every 6 months until age 14.

Duration: 1950-continuing.

Cooperating group(s): Oregon State Board of Dental Examiners; National Dairy Council; Tektronix Foundation, Inc.; Medical Research Foundation of Oregon; National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: *Growth*, 1967, 31, (2), 119-131; *Human Biology*, May, 1967, 39, (2), 182-191; *Archives of Oral Biology*, 1967, 12, (4), 469-486.

27-AA-7 RADIOGRAPHIC STANDARDS OF REFERENCE FOR SKELETAL DEVELOPMENT OF CHILDREN: REVISIONS AND NEW STANDARDS

Investigator(s): S. Idell Pyle, Ph.D., Research Associate in Anatomy, Case Western Reserve University School of Medicine, Cleveland, Ohio 44106; William W. Greulich, Ph.D., Research Biologist, National Institute of Child Health and Human Development, Bethesda, Maryland 20014; and staff of the National Center for Health Statistics involved in the National Health Survey, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C. 20201.

Purpose: To develop radiographic standards of reference for skeletal development of children.

Subjects: Healthy children in Cleveland.

Methods: Between 1937 and 1962 series of films of approximately 1,000 healthy Cleveland children were used to prepare standards for the hand and wrist, the knee, and the foot and ankle. These standards display a modal rate of development of each bone in these three regions of the growing skeleton as they appear at regular intervals between birth and adulthood.

Cooperating group(s): Bolton Study, Cleveland, Ohio; Department of Maternal and Child Health, Harvard University School of Public Health.

Publications: Pyle, S. Idell and Hoerr, N. L. *A Radiographic Standard of Reference for the Growing Knee.* Springfield, Illinois: Charles C. Thomas, 1969.

27-AA-8 METHODS IN CHARACTER DEVELOPMENT

Investigator(s): Ernest M. Ligon, Ph.D., Director; and Staff, Union College Character Research Project, 10 Nott Terrace, Schenectady, New York 12308.

Purpose: To develop more effective methods in character development in cooperation with families and character-training agencies. (Character is defined in terms of three dimensions: philosophy of values, breadth of social vision, and strength of purpose.)

Subjects: Children and families throughout the United States. The families belong to churches, YMCA's, and schools, but participate in the study as individual families.

Methods: Procedures of the research are based on action research, in which the participants cooperate with the laboratory and use methods of coscientist research. Open-ended reports on research goals constitute the basic body of research data. An analysis of these data serves as the basis for the development of new procedures and for the scientific reports which are published concerning it.

Findings: Reports have been prepared concerning hypotheses tested in the home and character-building agencies. Most of the findings relate to the home, learning, decision making, and methods for character development, plus descriptions of age-level potentials, especially for decision making.

Duration: 1935-continuing.

Cooperating group(s): Lilly Endowment, Inc.

Publications: Detweiler, Herbert. *Character Potential: A Record of Research; How to Stand Up for What You Believe.* New York: Association Press, 1966; Ligon, Ernest M. and Smith, Leona J. *The Marriage Climate.* St. Louis, Missouri: Bethany Press, 1963.

27-AA-9 LONGITUDINAL STUDIES OF CHILDREN WITH CRANIOFACIAL BIRTH DEFECTS

Investigator(s): Samuel Pruzansky, D.D.S., Director, Center for Craniofacial Anomalies, University of Illinois Medical Center, Chicago, Illinois 60612.
Purpose: To study the epidemiology, genetics, morphology, physiology, and postnatal development of congenitally deformed craniofacial structures.
Subjects: 2,000 subjects.
Methods: Most subjects were initially studied as infants. Procedures included roentgenocephalometry and tomography. Dental casts, photographs, and speech, hearing, psychosocial, and pediatric evaluations supplied additional information.
Duration: 1949-continuing.
Cooperating group(s): Illinois State Pediatric Institute; National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: A list of articles in journals of dentistry, medicine, public health, speech and hearing, and psychology is available from Dr. Pruzansky.

27-AA-10 YOUTH REPORTS

Investigator(s): Cecelia E. Sudia, M.A., Director, Youth and Child Studies Branch, Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare, Washington, D. C. 20201.
Purpose: To collect and analyze opinions and values of high school age youth.
Subjects: 250 high school students.
Methods: Students were randomly chosen from youth enrolled in college preparatory courses in high schools selected to cover urban and suburban schools in each of 12 metropolitan areas in the United States. Each student was sent a set of short, open-ended questions and asked to report on the range of opinions in his school or neighborhood group. It is anticipated that the panel will be interviewed in this way three or four times a year. Replies are coded for content; analysis is both quantitative and qualitative.
Findings: The method of mail interview is successful with this group of students.
Duration: Spring 1969-continuing.
Publications: *Teenagers Discuss the "Generation Gap"–Youth Reports No. 1*, 1969.

27-AA-11 PHILADELPHIA CENTER FOR RESEARCH IN CHILD GROWTH

Investigator(s): Wilton M. Krogman, Ph.D., LL.D., Director, Philadelphia Center for Research in Child Growth; Francis E. Johnston, Ph.D., Assistant Director, The Center, and Associate Professor of Anthropology, Department of Physical Anthropology; and Geoffrey F. Walker, B.D.S., Director of the Philadelphia Center for Craniofacial Biology, and Research Associate in Orthodontics, Department of Orthodontics, Division of Graduate Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19146.
Purpose: To develop standards and norms of physical growth and development for normal, healthy children in Philadelphia.
Subjects: 300 white boys and 300 white girls; 250 black boys and 250 black girls; ages 6 to 17.

Methods: Cephalometry and somatometry are employed. Measurements are linear, transverse, sagittal, circumferential, skin thickness (via skin calipers), X-ray films of left hand (routinely) and of upper arm or lower leg (reduced number of cases); also of head and face in *norma laterales sinistra* and *norma faciales* (roentgenographic cephalometry). Dental models are taken. Histories secured are (1) familial in terms of ethnic background and socioeconomic status; (2) medical (illness) and dental (occlusion, dental stage, oral habits); (3) genetic, in terms of the familial occurrence of trait(s) considered. All data may be referred to several age categories: (1) chronological age, (2) dental or eruptive age, and (3) skeletal or biological age. All data have been put on microfilm, coded, and stored in computer memory. (1) *School Series:* initially based on 600 normal, healthy, white 6- to 12-year-old school children from five Philadelphia schools (ultimately followed to 22 schools). These children have provided the core data upon which the 7- to 17-year standards are based. (2) *Negro American Series:* based on the semiannual study of 500 elementary school children. These children have provided the core data upon which the 7- to 17-year standards are based. (3) *Orthodontic Series:* now numbers 2,700 children from the Orthodontic Clinics of the University of Pennsylvania (2,000) and the Children's Hospital (500). All of these children have been followed through their treatment course (2 to 4 years, average). There are posttreatment follow-up studies on about 10 percent of them. (4) *Cleft Palate Series:* in cooperation with Children's Hospital. These data are single preoperative roentgenographic cephalometric, plus selected somatometry. There are 600 such records and follow-up data on about 10 percent of these children. (5) *Cooley's Anemia Series:* based on 120 children. Measurements, X-ray films, familiogenetic histories were taken, and therapeutic treatment was given. (6) *Endocrine and Chromosomal Series:* seen on a referral basis from Children's Hospital.
Duration: 1949-1971.
Cooperating group(s): Children's Hospital of Philadelphia; Philadelphia Board of Education; School System, Archdiocese of Philadelphia; National Institute of Dental Research and National Institute of Child Health and Human Development, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-AA-12 LONGITUDINAL GROWTH STUDY OF GUATEMALAN CHILDREN OF DIFFERENT RACIAL HISTORIES AND SOCIOECONOMIC BACKGROUNDS

Investigator(s): Francis E. Johnston, Ph.D., Associate Professor, Department of Anthropology; Robert M. Malina, Ph.D., Assistant Professor; and Martha Galbraith, Ph.D., Faculty Associate, University of Texas, Austin, Texas 78712; and Robert MacVean, D.Ed., Vice-Rector of Universidad del Valle de Guatemala, Director of American School of Guatemala City, Guatemala.
Purpose: To study the interrelationships between growth measurements and performance measurements in a longitudinal sample of Guatemalan children of different genetic and socioeconomic backgrounds.
Subjects: Approximately 2,000 male and female students, ages 6 to 16, enrolled in two public and two private schools in Guatemala City are examined each year. Children are of Guatemalan, European, and North American backgrounds.
Methods: Subjects are examined each spring. Data gathered include anthropometric measurements, hand-wrist X-rays, results of intelligence and performance tests, and medical examination records. Cross-sectional and longitudinal analyses of data will be performed.
Duration: 1953-1975.
Cooperating group(s): American School, Guatemala City; Universidad del Valle de Guatemala; University of Texas at Austin.

27-AA-13 PROGNOSTIC VALUE OF NEONATAL BEHAVIORAL ASSESSMENTS

Investigator(s): Judy F. Rosenblith, Ph.D., Professor of Psychology, Wheaton College, Norton, Massachusetts, and Associate Member, Institute of Life Sciences, Brown University, Box 1910, Providence, Rhode Island 02912.

Purpose: To determine if standardized behavioral assessment of newborns can be used to identify a population at risk to later neurologically based developmental dysfunction.

Subjects: Approximately 1,750 newborns, 1,550 of whom participate in the Providence Collaborative Perinatal Research Project.

Methods: The Rosenblith modification of the Graham Scale, a behavioral assessment, was used to determine the neurological, muscular, and sensory status of the newborns. Prognostic value of this scale is determined by relating it to criteria obtained in the follow-up assessments of the Collaborative Perinatal Research Project. Replication of the original study was done with 400 infants. Data are now complete through the fourth year psychological examination.

Findings: Newborn measures are related to development at 8 months of age. Specific newborn signs are prognostic of later dysfunction: hypersensitivity to light is indicative of severe neurological damage; unusual patterns of muscle tonicity are related to varying degrees of developmental problems. The newborn assessments could be routinely adopted by hospitals: the equipment costs less than $10, the time required for assessment is less than a 1/2 hour; and the examination procedure can be taught to paraprofessional personnel.

Duration: January 1958-September 1975.

Cooperating group(s): Providence Lying-In Hospital; Child Development Study and Institute of Life Sciences, Brown University.

Publications: *Biologia Neonatorium*, 1970, 15, 217-228; *American Academy of Ophthalmology and Otolaryngology. Transactions* (in press).

26-AA-14 COLLABORATIVE STUDIES IN CEREBRAL PALSY AND OTHER NEUROLOGICAL AND SENSORY DISORDERS OF INFANCY AND CHILDHOOD

Investigator(s): Heinz W. Berendes, M.D., National Institute of Neurological Diseases and Stroke, Public Health Service, U. S. Department of Health, Education, and Welfare, Bethesda, Maryland 20014.

Purpose: To investigate factors and conditions that affect parents: (1) conditions of pregnancy; e.g., infections, trauma, bleeding, drugs, and progress of labor; (2) environmental factors that influence the mother; e.g., social and economic conditions, emotional stress, and medical care; (3) biological factors in parents; e.g., age, parity, medical and reproductive history, and immunologic characteristics; and (4) the genetic background of the parents. To investigate in the offspring: disorders of the nervous system at the time of delivery or disorders that appear during infancy or early childhood, including cerebral palsy, mental subnormality, and behavioral disorders.

Subjects: Approximately 8,000 live births a year from collaborating institutions for 5 years. Offspring are followed until school age.

Methods: A detailed investigation of the independent variables will be directed towards the reevaluation of the effect of factors already suspected, clarification of the way in which these factors are operative, and the discovery of new factors. Information, from women studied during pregnancy and from their offspring throughout infancy and early childhood, will be collected in a uniform way in a number of medical centers throughout the country, and analyzed. Intensive study is made of a limited number of cases; less intensive studies are conducted for as many

damaged children and abnormal pregnancies as possible.

Duration: 1956-continuing.

Cooperating group(s): Yale University, New Haven, Connecticut; Charity Hospital, New Orleans, Louisiana; Johns Hopkins University School of Medicine, Baltimore, Maryland; Boston Lying-In Hospital, Children's Medical Center, and Harvard University (Warren Anatomical Museum), Boston, Massachusetts; University of Minnesota Medical School, Minneapolis, Minnesota; Columbia-Presbyterian Medical Center and New York Medical College, New York, New York; Children's Hospital of Buffalo, Buffalo, New York; University of Oregon Medical School, Portland, Oregon; Children's Hospital of Philadelphia and Pennsylvania Hospital, Philadelphia, Pennsylvania; Brown University, Providence, Rhode Island; University of Tennessee Medical School, Memphis, Tennessee; Medical College of Virginia, Richmond, Virginia.

Publications: A bibliography is available from Dr. Berendes. Chipman, S. S.; Lilienfeld, A. M.; and Donnelly, J. F. (eds.) *Research Methodology and Needs in Perinatal Studies*. Springfield, Illinois: Charles C. Thomas, 1966. Chapters 5 and 6.

GROWTH AND DEVELOPMENT

General

27-BA-1 HIGH RISK INFANT FOLLOW-UP STUDY

Investigator(s): Lula Lubchenco, M.D., Co-Director, Newborn and Premature Center, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado 80220.
Purpose: To study the handicaps associated with intrauterine growth retardation in comparison to normal growth for gestational age.
Subjects: Surviving children born at the University of Colorado Medical Center, 1963 to 1965.
Methods: Children are divided into neonatal birth weight-gestational age blocks of small for gestational age, term (SGA), and appropriate for gestational age, preterm (AGA). Subjects will receive complete physical, mental, and neurological evaluations. A random sample of children from all other birth weight-gestational age blocks will serve as controls. Birth record data and follow-up examination data will be correlated. Handicaps in the SGA and AGA groups will be compared. The role of perinatal events will be correlated with outcome by means of multivariate analysis.
Duration: July 1967-continuing.

27-BA-2 REFERENCE STANDARDS FOR CORTISOL PRODUCTION AND METABOLISM DURING GROWTH

Investigator(s): Frederic M. Kenny, M.D., Associate Professor of Pediatrics, Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine, 125 DeSoto Street, Pittsburgh, Pennsylvania 15213.
Purpose: To provide normative data on cortisol production during growth and development.
Subjects: 96 boys and girls, ages birth to 20 years.
Methods: An *in vivo* dilution technique was employed. (See publication cited below for detailed procedures.)
Findings: Normal ranges of cortisol production have been determined.
Duration: 1959-continuing.
Cooperating group(s): Renziehausen Fund; Public Health Service, U.S. Department of Health, Education, and Welfare.
Publications: *Metabolism*, 1970, 19, 280-290.

27-BA-3 MOTOR PERFORMANCE STUDY—MICHIGAN STATE UNIVERSITY

Investigator(s): Vern D. Seefeldt, Ph.D., Assistant Professor of Physical Education, University of Wisconsin, Madison, Wisconsin 53706; D. Conrad Milne, Ph.D., Assistant Professor of Physical Education, Thames Hall, University of Western Ontario, London 72, Ontario, Canada; and John L. Haubenstricker, M.A., Lecturer of Physical Education, Michigan State University, East Lansing, Michigan 48823.

Purpose: To make a longitudinal study of physical growth, motor development, and academic achievement during childhood and adolescence; and to determine the accuracy of predictions of physical size and motor performance in adolescence from size and performance in infancy and early childhood.

Subjects: 291 children, ages 5 to 12, from the Lansing, Michigan area.

Methods: Children are measured semiannually on 13 growth variables and 7 motor performance items. The interrelationship of physical growth and motor performance is studied in conjunction with the rate of skill progression according to developmental level.

Duration: June 1968-June 1978.

Cooperating group(s): Physical Education Department, Michigan State University.

27-BA-4 ELECTROENCEPHALOGRAPHIC STUDIES IN NEWBORNS AND FOLLOW-UP

Investigator(s): Rudolf Engel, M.D., Professor of Pediatrics, University of Oregon Medical School, Portland, Oregon 97201.

Purpose: To observe maturational patterns of the electroencephalogram in infants.

Subjects: 2,000 children born at the University of Oregon Medical School.

Methods: The follow-up is carried out in cooperation with the Collaborative Study on Cerebral Palsy, Mental Retardation, and Other Neurological and Sensory Disorders of Infancy and Childhood. Electroencephalogram patterns of premature and full-term neonates exposed to varying conditions including exposure to photic, acoustic, and sensory stimulation are studied. Neonatal electroencephalograms with evoked potentials were repeated in some premature babies until they reached term (40 weeks of conceptual age). Follow-up electroencephalograms with evoked potentials will be carried out in selected cases at 7 years of age. The Stanford Binet (Form LM) will be administered to all project children at 4 years, and seven subtests of the Wechsler Intelligence Scale for Children will be administered at 7 years.

Findings: The inverse relationship between conceptual age and latencies of photic-evoked potentials permits an independent calculation of conceptional age. Individual differences, however, are great. Children with short latencies at birth perform better at 8, 12, and 36 months of age. There is no correlation of electroencephalogram patterns with IQ at 4 or 7 years of age.

Duration: 1960-1973.

Cooperating group(s): National Institute of Neurological Diseases and Stroke, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-BA-5 MENTAL AND PHYSICAL DEVELOPMENT OF TUNISIAN CHILDREN

Investigator(s): Harben Boutourline Young, M.D., F.R.C.P., F.A.A.P., Associate Professor of Clinical Pediatrics and Public Health, Department of Pediatrics, Yale University School of

Medicine, New Haven, Connecticut 06510.

Purpose: To explore the relationships between socioeconomic variables and psychological and somatic development; to provide norms for child development; and to construct research methods suitable for a number of developing countries.

Subjects: Approximately 8,000 children, ages birth to 12 years, equally distributed among five social classes.

Methods: Physical examinations are performed on all children. X-rays of each child's left hand and wrist are assessed by the Tanner-Whitehouse method. Mental development is assessed by the Bayley Mental and Motor Scales of Development (children, 2 to 26 months), a preschool scale of development (children, 26 months to 6 1/2 years), and a school level psychological battery (children, 6 1/2 to 12 years).

Findings: Marked social class differences were observed in children from 6 1/2 to 11 years.

Duration: February 1966-December 1971.

Cooperating groups(s): The Grant Foundation; Department of Pediatrics, Yale University School of Medicine; Harvard School of Public Health; Agency for International Development; National Center for Health Statistics and National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

Publications: *Journal of Tropical Pediatrics*, 1969, 15, 222-224; *Agricultural Science Review* (in press).

Physical

27-CA-1 **A SURVEY OF THE DEVELOPMENT OF CHINESE CHILDREN IN HONG KONG FROM BIRTH TO AGE 5**

Investigator(s): C. E. Field, M.D., F.R.C.P., Professor of Child Health, Department of Pediatrics; and Flora M. Baber, M.B.CH.B., MRCP(E), D.C.H., Part-time Supervisor, Child Development Centre, University of Hong Kong, Yaumatei, Kowloon, Hong Kong.

Purpose: To obtain normal standards of growth and development of Chinese children in Hong Kong and to correlate these findings with their social environment.

Subjects: 782 children born in two maternity hospitals in Kowloon.

Methods: Within 24 hours after birth children are examined and are then reexamined every month during their first year, every 2 months the second year, and every 3 months thereafter until age 5. Examination includes measuring length, weight, arm and calf circumference, and skinfold. Developmental milestones adapted from the Gesell Schedules are noted and information on infant feeding, care, home, and family is obtained. From ages 2 to 5 children are given the Stanford Binet test.

Findings: Nutrition is generally good in the first 4 months, but later there is a flattening of the growth curve with a failure to gain in many infants and losses in others. Infants show a lack of cooperation from 6 to 8 months through 18 to 22 months.

Duration: 1967-1972.

Cooperating group(s): Nuffield Foundation; Li Shu Fan Medical Foundation, Hong Kong; China Medical Board.

27-CC-1 **RELATION OF AUDITORY DISCRIMINATION TO THE DIFFERENT PRONUNCIATION OF WORDS BY THE PARENT AND TEACHER**

Investigator(s): Robert C. McIntyre, Jr., Student, Wofford College, Spartanburg, South Carolina 29301.

Purpose: To determine if there is a correlation between children's auditory discrimination test and reading scores, and differences in the pronunciation of words by the mother and the teacher.

Subjects: 17 boys and 9 girls, 8 years old, of average intelligence, from various socioeconomic levels.

Methods: The Wepman Auditory Discrimination Test will be administered by a cassette tape recorder. Reading scores, established by the school, will be used. The teacher and each parent will make a tape recording of a group of selected words. Independent judges will make comparisons of pronunciations of the words on a difference scale of 1 to 5.

Duration: October 1970-December 1970.

27-CE-1 **A SURVEY ON NUTRITIONAL STATUS AND DIETARY INTAKE AND BODY COMPOSITION ON 14- AND 15-YEAR-OLD CHILDREN IN GLASGOW**

Investigator(s): John V. G. A. Durnin, D.Sc., Reader, The Institute of Physiology, University of Glasgow, Glasgow, Scotland.

Purpose: To determine the nutritional status, dietary intake, and body composition of Scottish adolescents.

Subjects: 600 boys and girls, ages 14 to 15.

Methods: The procedures include (1) weighing each item of food eaten during 7 consecutive days, (2) calculating the caloric and nutrient intake, (3) recording simple anthropometry and skinfold measurements, and (4) obtaining a record of the pattern of activity throughout the 7 days.

Duration: February 1970-May 1971.

27-CE-2 **ANALYSIS AND CLASSIFICATION OF INFANT FOOD COMPOSITION**

Investigator(s): Samuel J. Fomon, M.D., Professor of Pediatrics; L. J. Filer, Jr., M.D., Professor of Pediatrics; and Thomas A. Anderson, Ph.D., Associate Professor of Pediatrics, University Hospitals, Iowa City, Iowa 52240.

Purpose: To analyze and classify commercially prepared foods for infants with respect to their ability to contribute various essential nutrients to the diet.

Methods: Data concerning nutrient content of strained and junior foods commercially prepared for infants will be obtained from the manufacturers and compared with results of chemical analyses carried out in the laboratory of the researchers. The foods will be classified into five groups according to caloric density: less than 40, 40 to 60, 61 to 80, 81 to 100, and more than 100 kilocalories per 100 grams.

Duration: July 1970-June 1972.

Cooperating group(s): Health Services and Mental Health Administration, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-CE-3 **SEQUELAE OF DUTCH FAMINE**

Investigator(s): M. W. Susser, G. Saenger, F. Marolla, and Z. A. Stein, Division of Epidemiology, Research Foundation for Mental Hygiene, Albany, New York.

Purpose: To explore the experiences of Dutch subjects whose conception, intrauterine, or early postnatal life coincided with the famine winter of 1944-45, when people in towns in western Holland suffered acute undernutrition.

Subjects: Offspring of Dutch women from towns in western Holland, and, as controls, offspring of Dutch women from areas of Holland unaffected by famine.

Methods: The possible effects of acute maternal undernutrition at conception and during gestation of the experimental groups will be compared with controls' births, conceptions, and pregnancies that occurred during the famine period in unaffected parts of Holland, as well as those that occurred before and after the famine in affected areas. Vital statistics studied include (1) causes of death among infants, children, and adults; (2) data on the fertility of the survivors; (3)records of the medical, psychological, educational, and social status of 18-year-old males; and (4) records relating to institutions for the mentally retarded, the handicapped, and the mentally ill.

Duration: September 1969-August 1970.

Cooperating group(s): National Institute of Child Health and Human Development, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-CE-4 **DIETS AND NUTRITURE OF PRESCHOOL CHILDREN IN SELECTED AREAS OF HONOLULU**

Investigator(s): M. W. Brown, Graduate School, University of Hawaii, Spalding Hall, Room 359, Honolulu, Hawaii 96822.

Purpose: To determine the nutritional status of preschool children.

Subjects: 281 Hawaiian 2- and 3-year-olds, half from low income and half from middle income families.

Methods: Data on each child were collected including (1) a 3-day food recall-record, (2) diet and health history, (3) physical examination record, (4) scores on psychomotor development tests, (5) analysis of urine sample, (6) family socioeconomic factors, and (7) maternal food practices during pregnancy and lactation. Dietary, biochemical, and clinical evaluations were made.

Findings: Mean dietary intakes of both groups compared favorably with the 1968 recommended dietary allowances except for iron. Three-fourths of the children's diets contained less than 2/3 the allowance for iron; 1/3 of the diets were low in calcium and ascorbic acid; and 1/5 were low in vitamin A. Low income diets more often than middle income diets contained less than 2/3 the recommended allowances. About 15 percent of the children had hemoglobin levels below 11 gram percent; 12 children had hemoglobins below 10 gram percent. Mild protein malnutrition was indicated by biochemical evaluation among 1/5 of the children but was not correlated with protein intakes. Excretion levels of thiamine and N-Methyl nicotinamide were adequate to high. The children were short in comparison with Fels Institute standards. Weight followed a more normal curve. Skinfold measurements were more closely related to the weight-for-height than to the height-weight-age method of evaluating body build.

Duration: July 1969-June 1970.

Cooperating group(s): Consumer Food Economics Division, Agricultural Research Service, U.S. Department of Agriculture.

27-CF-1 **DENTAL MATURATION AND ITS PREDICTION**

Investigator(s): Elizabeth Ann Fanning, F.A.C.D.S., Reader in Preventive Dentistry; and Tasman Brown, F.A.C.D.S., Reader in Oral Anatomy, Department of Dental Science, University of Adelaide, Adelaide, South Australia 5000.

Purpose: To study the use of tooth formation stages in the assessment of maturity levels and in the prediction of the time of later stages in dental development.

Subjects: 290 Caucasoid children.

Methods: The relationship between various developmental stages of tooth formation will be studied, and the available ratings will be analyzed in order to derive groupings of the developmental stages according to what they measure in common. Similar techniques have been useful in studying the timing of ossification stages in the human. By factor analysis the developmental stages of tooth formation will be grouped into factors that can be interpreted to disclose interrelationships between the various stages, and that also indicate evidence of the basic determinants of variation in tooth formation. Objective methods of prediction of tooth formation stages will be developed by step-wise regression.

Duration: 1969-continuing.

Cooperating group(s): Medical Research Council of Australia; National Health and Medical Research Council of Australia.

27-CF-2 **A CLINICAL EVALUATION OF TWO RESTORATIVE MATERIALS RELATED TO CAVITY PREPARATION DESIGN IN CHILDREN**

Investigator(s): Richard J. Mathewson, D.D.S., M.S., Director, Hospital Pedodontic Service; Donald R. Porter, D.D.S., M.S., Chairman, Department of Pedodontics; Arthur E. Retzlaff, D.D.S., Director, Graduate Pedodontic Programs, University of Oregon Dental School, 611 Campus Drive S.W., Portland, Oregon 97201.

Purpose: To compare the effectiveness of a new copper eutectic alloy with a known clinical dental amalgam, and to determine if retention in primary teeth of children is really needed.

Subjects: 24 children, ages 6 to 11, with active dental caries in all areas of the mouth.

Methods: All children will be instructed in preventive dentistry including diet evaluation, tooth brushing, home care, and fluoride therapy. Three pedodontists will randomly select the type of cavity preparation (retention versus nonretention), and which of two types of dental amalgam to use. Rubber base impressions of all cavity preparations will be made, and all dental amalgams will be polished. The mouth will be photographed with a medical lens upon completing dental work, and at 6-month, 12-month, and 18-month intervals. Evaluation of the success or failure of the dental restorative material and the type of cavity preparation will be made from the photographs. Variables relating to the participating dentists will be included in the statistical analysis of the data.

Duration: May 1970-December 1971.

Cooperating group(s): Department of Dental Materials Science, University of Oregon Dental School.

27-CF-3 STUDIES OF FACIAL AND DENTAL GROWTH IN PRE- AND POSTADOLESCENTS

Investigator(s): Coenraad F. A. Moorrees, D.D.S., Professor of Orthodontics, Forsyth Dental Center, 140 Fenway, Boston, Massachusetts 02115; and Robert B. Reed, Ph.D., Professor of Biostatistics, Harvard School of Public Health, Boston, Massachusetts 02115.

Purpose: To obtain an accurate estimate of facial, dental, and somatic growth.

Subjects: 531 pairs of twins and their age matched siblings, 438 pairs of which collaborated 2 or more years (292 twin pairs and 399 siblings are presently active); 245 parents, examined once.

Methods: Facial, dental, and somatic growth interrelationships are studied in relation to growth rates and patterns, physique, nutrition, and physiologic and chronologic age scales. Procedures include (1) anthropometric measurements and bone age determinations (Tanner Whitehouse method) to study somatic growth, (2) standardized head radiographs to study facial growth, and (3) dental casts and lateral jaw radiographs to study growth of the dentition. Examinations are conducted yearly. Nutrition intake on a subsample of 150 twin pairs during 10 years has been recorded. A follow-up study on individuals, ages 18 to 33, who had been studied from birth to age 18, has been undertaken to define postpubescent growth changes in the face and dentition from the same perspective as outlined for the study of twins. Ninety individuals, ages 30 to 35, were reexamined. They were last examined at ages 16 to 18. For this study dental casts and standardized head radiographs were used.

Duration: 1959-1975.

Cooperating group(s): Department of Biostatistics, Harvard School of Public Health.

27-CF-4 THE EFFICACY OF AN ADHESIVE RESIN IN SEALING PITS AND FISSURES AND IN PREVENTING OCCLUSAL CARIES

Investigator(s): Herschel S. Horowitz, D.D.S., M.P.H., Chief, Epidemiology Branch; and Robert McCune, D.D.S., M.P.H., Chief, Materials and Technology Branch, Dental Health Center, Division of Dental Health, National Institutes of Health, 14th Avenue and Lake Street, San Francisco, California 94118.

Purpose: To determine the protection from occlusal caries derived from a single application of an adhesive resin, and to assess the durability and adhesive properties of the sealant.

Subjects: 430 children selected from 700 children enrolled in kindergarten and grades 1, 6, and 7 in Kalispell, Montana. Children selected had one or more pairs of homologous permanent teeth that were free of decay or fillings on occlusal surfaces and free of decay on all other surfaces.

Methods: One-half of the mouth of each participant was randomly designated as the test side; the other half served as the control. Occlusal surfaces of homologous teeth selected for the study received a prophylaxis. The occlusal surfaces of the test side were conditioned and sealed with the adhesive according to the developer's directions. Clinical examinations for caries will be conducted annually. Examinations to determine the physical characteristics of the sealant will be conducted at intervals of 4, 8, 12, 18, 24, and 36 months after initiation of the study.

Duration: May 1970-May 1973.

Cooperating group(s): First District Dental Society of the Montana State Dental Association; Dental Division of the Montana State Health Department; Kalispell School District # 5.

27-CF-5 **PILOT STUDY ON FLUORIDE CONCENTRATIONS IN THE ENAMEL SURFACES OF PERMANENT TEETH OF ADOLESCENTS NATIVE TO FLUORIDATED AND FLUORIDE DEFICIENT COMMUNITIES**

Investigator(s): Finn Brudevold, D.D.S., Senior Staff Member, Forsyth Dental Center, 140 Fenway, Boston, Massachusetts 02115.
Purpose: To correlate the level of fluoride concentrations in the enamel surface of teeth with the level of fluoride concentration in the drinking water and with the prevalence of dental caries; and to correlate the presence of certain trace elements in the drinking water with the prevalence of dental caries.
Subjects: 250 Caucasian youths, ages 13 and 14, from Boston, Massachusetts; Rockford, Illinois; Danvers, Massachusetts; and Charlotte, North Carolina. Communities were chosen because they differ significantly in their inhabitants' prevalence of caries.
Methods: The presence of dental caries is assessed clinically. Fluoride concentration in the surface enamel is assessed by chemical analysis which employs a specific fluoride electrode. The presence of trace elements in the drinking water is analyzed by emission spectography and atomic absorption photometry.
Duration: July 1970-June 1971.
Cooperating group(s): National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-CF-6 **A LONGITUDINAL STUDY OF SKELETAL GROWTH OF PREMATURES**

Investigator(s): Mary O. Cruise, M.D., Associate Professor of Pediatrics, State University of New York at Buffalo, and Buffalo Children's Hospital, Buffalo, New York 14222.
Purpose: To accumulate longitudinal data to establish distance and velocity curves for the growth of premature infants.
Subjects: 115 girls and 87 boys, ages 4 to 9, who are single born white subjects, and who weighed less than 2,500 grams at birth and were born at varying ages of gestation. Control subjects were full-term and weighed more than 2,500 grams at birth.
Methods: Trained examiners use standardized techniques to record the anthropometric observations. X-rays are made for the measurement of the left fibula and for the study of the centers of ossification. Psychological tests are administered to 4-year-olds. All data are statistically analyzed.
Duration: July 1961-undetermined.
Cooperating group(s): United Fund of Western New York; National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-CG-1 **INTERNAL-EXTERNAL CONTROL AND SOCIAL REINFORCEMENT EFFECTS ON MOTOR PERFORMANCE**

Investigator(s): Rainer Martens, Ph.D., Assistant Professor, Motor Performance and Play Research Laboratory, Children's Research Center, University of Illinois, Urbana, Illinois 61801.

Purpose: To determine the effect of praise and reproof on the performance of a qualitative motor task by young boys high in internal control compared to boys high in external control.
Subjects: 60 normal boys, ages 8 to 12. An equal number of internal control and external control subjects were selected using the Bialer Locus of Control Scale.
Methods: Internal and external control subjects were randomly assigned to one of the three social reinforcement treatments: praise, reproof, or control. A ball-throwing motor task was used, and reinforcement was contingent upon performance. The data were analyzed by ANOVA and ANCOVA treatments.
Findings: The results failed to support the hypothesis that social reinforcement affects the motor performance of internal control subjects more than that of external control subjects.
Duration: February 1970-November 1970.
Cooperating group(s): Department of Mental Health, State of Illinois; National Institute of Mental Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-CG-2 DYNAMIC AND STATIC BALANCE IN PRESCHOOL CHILDREN

Investigator(s): Karen Davis DeOreo, Ph.D., Assistant Professor, Ohio State University, 305 Pomerene Hall, Columbus, Ohio 43210.
Purpose: To investigate dynamic and static body balance in 3- to 5-year-old children; to determine the differences in children's performances within this age group; and to determine the methods used to perform the dynamic balance tasks.
Subjects: 150 nursery school and kindergarten children in Champaign-Urbana, ages 3 years to 6 years, 5 months.
Methods: A balance beam test was administered to investigate dynamic balance: four tasks were performed on three 12-foot long beams of 4-, 3-, and 2-inch widths. A balance board test was administered to determine static balance: subjects were required to maintain balance on a 14-inch square, unstable platform. Trials were given in both the lateral and the anterior-posterior planes. Several statistical methods, including a scalogram analysis, were used to analyze the data.
Findings: Older children (1) walked a greater distance in less time on the walking forward and backward beam tasks, (2) performed a larger percentage of the knee down and stoop turn tasks, and (3) maintained their balance on the balance board for a longer period of time and with fewer contacts than did younger children. Older children used primarily the alternate step pattern on the balance beam; younger children used primarily the shuffle step, mark time pattern. The shuffle step, alternate pattern was used much less than the other two methods and was performed primarily by the younger children. The older children used hand support less frequently during the knee down and stoop turn tasks than did the younger children. The rank order correlation between dynamic balance and static balance was .18. No significant differences were found between the performances of boys and the performances of girls. No significant correlations were obtained between balance performance and weight and height.
Duration: April 1970-June 1970.
Cooperating group(s): Champaign School District, Champaign, Illinois.

27-CG-3 STEREOTYPIES AND BOREDOM IN NORMAL CHILDREN

Investigator(s): Anthony F. Gramza, Ph.D., Assistant Professor, Department of Recreation, Children's Research Center, University of Illinois, Urbana, Illinois 61801.

Purpose: To examine the stereotypies of normal preschool children in an experimentally controlled boredom situation.
Subjects: Normal 4-year-olds attending the University of Illinois Children's Research Center Nursery School.
Methods: It is hypothesized that organisms have optimum levels of engagement with environmental stimuli; that when a substantial negative discrepancy develops between optimal and actual sensory input, a state of stress results, and organisms will engage in activities that tend to increase stimulational input; and that among these activities are stereotypic motor patterns. This theoretical model (to be tested in this study) proposes to explain the occurrence and modulation of stereotypies in normal children. The basic experimental design uses (1) isolate subjects, (2) an essentially bare standardized experimental room, and (3) programmed stimulus cuing of a simple motor task during a specified period of time spent within the room.
Findings: Twelve categories of stereotypies have been tentatively defined. The subjects have been found to differ markedly in rates of stereotypy. Rates of stereotypy tend to increase with time spent in the experimental context.
Duration: January 1969-undetermined.
Cooperating group(s): Department of Mental Health, State of Illinois.

27-CG-4 DEVELOPMENT AND ANALYSIS OF PSYCHOMETRIC TESTS FOR THE EVALUATION OF IMPAIRMENT IN BRAIN-DAMAGED PATIENTS

Investigator(s): W. H. Gaddes, Ph.D., Professor; and O. Spreen, Ph.D., Professor, Department of Psychology, University of Victoria, Victoria, British Columbia, Canada.
Purpose: To investigate sensory, intellectual, and motor changes in patients with brain damage and various types of cerebral dysfunction.
Subjects: Children, ages 6 to 16, and adults.
Methods: Patients are selected by neurological examination. The groups studied were composed of subjects who were (1) brain-damaged, (2) minimally brain-damaged, and (3) aphasic. Two additional groups were composed of subjects exhibiting learning disorders with negative neurological findings, and normal subjects. A detailed battery of over 20 neuropsychological tests is used to examine the subjects. These test results are correlated with documented neurological data and educational findings.
Duration: 1962-1971.
Cooperating group(s): Canadian Federal Health Grants; Canadian Association for the Mentally Retarded; British Columbia Mental Retardation Institute; Department of Neurology and Neurosurgery, Royal Jubilee Hospital.
Publications: *Journal of Auditory Research* (in press).

27-CH-1 THE RELATIONSHIP OF READING AND ARTICULATION TO AUDITION

Investigator(s): Gabrielle Casebier, Ph.D., Instructor, Speech Correction, Division of Child Psychiatry, School of Medicine, Washington University, 660 South Euclid, St. Louis, Missouri 63108.

Purpose: To examine the relationships between (1) articulation and reading, (2) letter to sound conversion of beginning readers and the auditory abilities of speech discrimination and identification, (3) articulation and auditory abilities of discrimination and identification, (4) articulation and auditory abilities and visual equivalence, and (5) articulation deviations and/or retarded reading and the strengths and weaknesses of various language processes.
Subjects: 26 experimental subjects who have articulation deviations and are 2 years behind in reading. They fall within the normal range on intelligence, visual, and auditory tests. The 26 control subjects have no articulation deviations, but are 2 years behind in reading.
Methods: The experimental measures are: Gates-McGinitie Reading Tests B and C, Templin Darley Screening Test of Articulation, Phoneme Identification, Interphonemic Identification, Goldman Fristoe-Woodcock Test of Auditory Discrimination, Durrell Listening Reading Series, Auditory-Visual Patterns Test of Integration, Illinois Test of Psycholinguistic Abilities, tape recordings of speech, and parent interviews. The data analysis will be addressed to each of the areas under consideration.
Duration: February 1970-July 1970.

27-CH-2 SPEECH PARAPRAXES AND THE DEVELOPMENT OF LANGUAGE

Investigator(s): H. B. Gerard, Department of Psychology, School of Letters, University of California, 401 Hilgard Avenue, Los Angeles, California 90024.
Purpose: To examine some causes of speech disruption in school-age children; to analyze language constituents within the design of a pilot investigation; and to determine the structural positions of newly defined or isolated speech disturbances within the general rubric of speech parapraxes.
Subjects: 128 school-age children.
Methods: The objective of the pilot study was to develop a speech disruption index by examining the speech changes attendant upon the induction of anxiety. Speech samples were recorded on tape and were supplemented with physiological data. These samples and speech data collected on 1,800 children in 1966, 1967, and 1969 will be analyzed by computer.
Duration: April 1970-April 1971.
Cooperating group(s): Division of Social Sciences, National Science Foundation.

27-CH-3 SPEECH RATE IN CHILD LANGUAGE

Investigator(s): G. D. McNeill, Graduate School, University of Chicago, 5801 South Ellis Avenue, Chicago, Illinois 60637.
Purpose: To analyze speech rates in child language, and to investigate (1) what governs children's rate of speech, (2) why and to what extent speech rate increases with development, (3) how speech rates differ with age, (4) how and to what extent comprehension and production of speech are related, (5) if the rate of speech is uniform or is slower with newly acquired grammatical forms, and (6) how adults cope with children's slow comprehension of linguistic information, and the cues in child speech adults rely on in making adjustments in their own speech to children.
Subjects: Children of different ages.
Methods: A library of tape recordings of spontaneous speech samples of children of different ages

speaking to various types of people will be assembled. This library will provide data for a basic description of child language, as well as stimulus material for subsequent experiments with children and adults.
Duration: January 1970-January 1971.
Cooperating group(s): National Science Foundation.

Intellectual

27-DA-1 RESPONSE PATTERNS AND TEACHING STYLE IN CHILDREN WITH BRAIN DAMAGE

Investigator(s): Leonard Diller, Ph.D., Chief, Behavioral Science, Institute of Rehabilitation Medicine, New York University Medical Center, 400 East 34th Street, New York, New York 10016.
Purpose: To compare a child's competence and response style to educational materials in a test-type setting with the teacher's response style in instructing a child in a nursery, and to relate the teacher's response style to the child's response style.
Subjects: Two groups of handicapped non-brain-injured children and three groups of brain-injured children, ages 3 to 7; 15 children in each group.
Methods: Each child will be examined on the Stanford Binet and on three tasks and will be observed in the nursery school environment for five 10-minute periods early in the program and again later in the program. The child will be evaluated in terms of competence and response style. The teacher's response style in the course of instructing the child will be examined. All the measures will be interrelated. Among the major parameters to be observed on the test and in the classroom is a child's task orientation.
Findings: Reliability of nursery school observations yields correlations above .90.
Duration: September 1969-May 1973.
Cooperating group(s): Easter Seal Foundation; Office of Education, U.S. Department of Health, Education, and Welfare.

27-DB-1 A LONGITUDINAL ASSESSMENT OF THINKING ABILITY OF PRELITERATE CHILDREN DURING A 2-YEAR PERIOD

Investigator(s): R. S. Ball, Department of Psychology, Graduate School, Arizona State University, Tempe, Arizona 85281.
Purpose: To discover the changes and the consistencies in the thinking abilities of young children during a 2-year period.
Subjects: 800 children, ages 3 and 4, from Phoenix, Arizona and Detroit, Michigan.
Methods: The children were tested at ages 3 and 4, and at age 5 were retested on a more difficult test involving the same kinds of items (cognition, convergent and divergent production). The test findings will be related to (1) the educational level of the parents, (2) the amount of time the child

spends with his parents, (3) aspects of home environment, and (4) the amount of time spent in a nursery school, play school, day nursery, or kindergarten. A questionnaire was given to the parents of the younger children, and a more inclusive and objective questionnaire was given to mothers of the 5-year-olds at retesting time. Results were studied by various evaluative processes, including factor analysis.

Duration: July 1969-June 1970.

Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DB-2 **STUDIES IN CHILDREN'S LANGUAGE AND COGNITIVE DEVELOPMENT**

Investigator(s): Wilbur A. Hass, Early Education Research Center, University of Chicago, 5801 South Ellis Avenue, Chicago, Illinois 60637.

Purpose: To define and to assess variables in the language and cognitive development of young children.

Subjects: Children, ages 4 to 8.

Methods: The investigators will study the processes by which change in language and cognition may be effected. The strategy of the program consists in designing small scale studies that further the identified objectives. The following methodological procedures apply variously to each investigation: (1) formulation of theoretical justification of a language or cognition aspect of evident relevance, (2) determination of measurement procedures for that aspect (often requires original design), (3) examination of age change in the aspect and establishment of its relation to relevant developmental or background variables, and (4) exploration of the change mechanism in the language or cognition aspect studied.

Duration: July 1969-June 1970.

Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DB-3 **OBJECT CONSTRUCTION AND IMITATION UNDER DIFFERING CONDITIONS OF REARING**

Investigator(s): J. McVicker Hunt, Ph.D., Professor of Psychology and Education, University of Illinois, Urbana, Illinois 61801; and John Paraskevopoulos, Ph.D., Hotel Xenia, Ioannina, Greece.

Purpose: To determine if the ages at which children achieve various levels of object construction and imitation differ with variations in the conditions of their rearing.

Subjects: 233 children, ages 5 months to 5 years: 75 lived from shortly after birth in the Municipal Orphanage (caretaker-child ratio=1:10); 64 lived in Metera (caretaker-child ratio=1:3); and 94 lived with their parents.

Methods: All orphans were given the adaptations of the Uzgiris-Hunt Scales of Psychological Development in Infancy for object permanence and imitation, both gestural and vocal.

Findings: The age at which infants living under the three sets of conditions achieve higher levels of object permanence and vocal imitation differ substantially. Means of children in the Municipal Orphanage average a year older than means of children at Metera, who average a nonsignificant couple of months older than means of children reared at home. The smallest standard deviation in age at criterion is among children at Metera; the standard deviation in age at criterion of the children at the Municipal Orphanage is more than twice as large; and that of home-reared children is still larger.

Duration: June 1969-summer 1970.

Cooperating group(s): IDEA of the Kettering Foundation of Dayton, Ohio; National Institute of Mental Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-DB-4 IDENTIFICATION AND ANALYSIS OF COGNITIVE PROCESSES IN WELL AND POORLY FUNCTIONING PRESCHOOL CHILDREN

Investigator(s): Marion Blank, Ph.D., Associate Professor; and Marion G. Hornstein, Ph.D., Albert Einstein College of Medicine, Department of Psychiatry, 1300 Morris Park Avenue, Bronx, New York 10461.
Purpose: To define and assess the cognitive processes of preschool children.
Subjects: Lower and middle class boys and girls, ages 3 to 5, who function poorly or function well.
Methods: The subjects will be given a series of standardized lessons derived from the principles and techniques of a tutorial program developed by Marion Blank. The responses to these lessons will be analyzed in terms of the patterns of cognitive skill exhibited.The study will provide data on differential patterns of cognitive functioning: poorly functioning versus well functioning children; lower class versus middle class children; and on the development of cognitive skill patterns from 3 to 5 years of age.
Duration: September 1970-August 1973.
Cooperating group(s): Grant Foundation.

27-DB-5 CHILDREN'S SPATIAL VISUALIZATION

Investigator(s): John Eliot, Ed.D., Assistant Professor, Institute for Child Study, University of Maryland, College Park, Maryland 20742.
Purpose: To study the interaction between age, experience, stimulus factors, and instruction upon children's ability to perceive and imagine objects from different viewpoints.
Subjects: Equal numbers of boys and girls, ages 5 to 6 and 10 to 11.
Methods: Six experiments will be undertaken using a modification of Piaget's three-mountain landscape to test children's perception of viewpoints other than their own.
Duration: 1971-1974.

27-DB-6 CROSS-CULTURAL STUDY OF CONSERVATION (PIAGET)

Investigator(s): Marcel L. Goldschmid, Ph.D., Director, Center for Learning and Development, and Associate Professor of Psychology, McGill University, Montreal, Quebec, Canada.
Purpose: To investigate the influence of culture on young children's cognitive development.
Subjects: 2,250 children, ages 4 to 8; 250 children each from: Great Britain, Holland, Uganda, Kenya, Poland, United States, Canada, Australia, and New Zealand.
Methods: The Goldschmid and Bentler Concept Achievement Kit (conservation concepts) and the Raven Coloured Progressive Matrices were administered to the sample. Additional data were obtained on the children's education, vocabulary, and parents' occupations.
Duration: 1969-1972.

27-DB-7 **THE DISTRIBUTION OF ATTENTION IN INFANTS**

Investigator(s): Robert B. McCall, Ph.D., Chairman and Senior Research Investigator, Fels Research Institute, Yellow Springs, Ohio 45387.
Purpose: To discern the parameters governing the distribution of attention, particularly those that relate to the formation of memories, retrieval of memories, and comparison of memories with new stimuli.
Subjects: Normal and abnormal infants, ages 4 to 12 months.
Methods: Infants, in a laboratory setting, are submitted to several presentations of a standard stimulus followed by a discrepant stimulus, that varies in its degree of similarity to the standard. Looking time, cardiac change, smiling, and vocalization are assessed. The magnitude of discrepancy, the degree of familiarization, sex of subject, and other variables are examined in relation to the rate and character of habituation and the extent of the response to a discrepancy. These phenomena are related to the nature of the child's manipulative play.
Findings: The response to a new stimulus appears to be a function of the magnitude of discrepancy, amount of familiarity with the standard, the pattern of habituation, and the other individual difference variables.
Duration: June 1968-undetermined.
Cooperating group(s): National Institute of Child Health and Human Development, Public Health Service, U.S. Department of Health, Education, and Welfare.
Publications: *Child Development*, 1970, 41, 861-869; *Developmental Psychology*, 1970, 2, 90-98; *Developmental Psychology*, 1970, 3, 343-349.

27-DC-1 **LONGITUDINAL STUDY OF CONDITIONABILITY IN INFANCY AND EARLY CHILDHOOD AS A STABLE AND MEASUREABLE ASPECT OF BEHAVIOR**

Investigator(s): Emily Strong, Instructor; and Arlee Vallery, Instructor, School of Home Economics, University of Alabama, University, Alabama 35486.
Purpose: To devise a battery of tests for testing conditionability of and individual differences in learning style during infancy.
Subjects: 32 infants randomly selected from infants born July 1 to September 15, 1969; half male and half female; half white and half black. Several suspected retardates are included.
Methods: Infants are tested at ages 3, 6, 9, and 12 months. Test battery includes a suitable test at each age for rate of eye blink conditioning, conditioned head turn, discrimination, and reinforced vocalization. Peripheral studies are made of attention span and laughter. Data will be related to IQ scores and scores on the Personality Trait of Introversion Extroversion at ages 3 and 5.
Duration: June 1969-September 1970.
Cooperating group(s): University of Alabama; Office of Education, U.S. Department of Health, Education, and Welfare.

27-DC-2 **DEVELOPMENTAL CHANGES IN CHILDREN WITH LEARNING DISABILITIES (CLD) CONTRASTED WITH NORMAL ACHIEVERS: NEUROLOGICAL, PHYSIOLOGICAL, MENTAL, PERCEPTUAL, AND MOTOR DIMENSIONS**

Investigator(s): Roscoe A. Dykman, Ph.D., Professor, Department of Psychiatry; John E. Peters, M.D., Director, Child Study Center; and Peggy T. Ackerman, Research Assistant, University of

Arkansas Medical Center, Little Rock, Arkansas 72201.

Purpose: To discover factors that singly or additively hamper academic success in a child of normal intelligence; to describe subtypes of these factors within the CLD population; and to demonstrate changes in symptomology as a function of age.

Subjects: 116 nondeprived Caucasian boys who were 8 to 12 years old during the initial study.

Methods: Of the 82 boys with learning disabilities, 42 were followed by the Child Guidance Clinic, and 40 were cared for in school. Controls were 34 normal achievers. CLD subjects were classified as hyperactive, hypoactive, or normoactive, and were further divided by scores on a developmental neurological examination that determined positive, equivocal, or negligible evidence of immaturity. All subjects were given the Wechsler Intelligence Scale for Children, Bender-Gestalt, and Gray Oral Reading Test. They were observed for amount of restlessness while waiting alone for experimenters. Reaction times on Luria-type conditioning and differentiation tasks were studied as well as physiological responses to an orienting stimulus. Subjects will be restudied when they are 14 years old.

Findings: Normal achievers, compared to CLD, have significantly higher verbal IQs (WISC), show far fewer signs of neurological immaturity, demonstrate better visual motor integration (more mature Bender protocols), react more quickly to stimuli, and respond physiologically more to stimuli than to situations. Younger CLD are more easily distinguished from younger controls than older CLD from older controls, especially in signs of neurological immaturity.

Duration: February 1967-March 1974.

Cooperating group(s): National Institute of Mental Health, Public Health Service, U.S. Department of Health, Education, and Welfare; Little Rock Public Schools; Arkansas State Health Department.

Publications: *American Journal of Orthopsychiatry*, 1970, 40, 766-781; *Journal of Learning Disabilities* (in press).

27-DC-3 CURRICULUM DEVELOPMENT AND EARLY SCHOOL LEARNING

Investigator(s): L. Hodgden, Center for Research in Education, Cornell University, Ithaca, New York 14850.

Purpose: To assess and analyze the intellectual, learning, and problem solving processes and characteristics of young children in order to develop effective curriculum materials and programs.

Subjects: Preschool and kindergarten children.

Methods: Four activities of the program involve (1) development of diagnostic procedures to be used by teachers to assess specific characteristics of preschool children, (2) a comparison of several methods of teaching syntactic structures to disadvantaged 4-year-olds, (3) an ecologically-oriented analysis of reading, writing, and verbal behavior in a progressive kindergarten setting, and (4) observations of children's artistic behavior in structured preschool situations.

Duration: July 1969-June 1970.

Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DC-4 EFFECTS OF PERSONALITY, MOTIVATION, AND REWARD ON LEARNING

Investigator(s): R. B. Cattell, Ph.D., D.Sc., Research Professor, Department of Psychology, University of Illinois, Urbana, Illinois 61801.
Purpose: To evaluate the effects of individual differences in personality, motivation, and home backgrounds on children's (1) long-term learning gain in basic subjects over 2 school years, and (2) learning and retention of a single lesson with additional analyses of the effects of psychological states and magnitude and recency of rewards.
Subjects: 2,448 junior high school boys and girls.
Methods: The long-term study, which involves 400 subjects, is a systematic assessment with controlled stimuli design. Children are tested on the High School Personality Questionnaire (HSPQ), School Motivation Analysis Test (SMAT), Culture Fair, and Educational Testing Service achievement tests. Class grades and family demography data are collected, and parents are queried about family attitudes and childrearing practices. The short-term study, which involves 2,048 subjects, studies the independent variables of arousal, fatigue, contingent and noncontingent reward, delay of reward, pretest, immediate posttest, 1-week posttest, and retention of the lesson. The dependent variable is the score on a driving achievement test developed for this study. Children will also be tested on the HSPQ, SMAT, Culture Fair, and a psychological-state battery.
Duration: May 1969-May 1973.
Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DC-5 THE NATURAL HISTORY OF THE EDUCATION OF THE DEPRIVED NEGRO CHILD

Investigator(s): Helen P. Gouldner, Ph.D., Professor of Sociology; and John W. Bennett, Ph.D., Professor of Anthropology, Social Science Institute, Washington University, Skinker and Lindell, St. Louis, Missouri 63130.
Purpose: To study the learning experiences of selected kindergarten through second grade children over a 3-year period, and to discover why they succeed or fail.
Subjects: Kindergarten through second grade children in four ghetto and two middle class schools.
Methods: Young ghetto children were observed in home, peer, and school milieus. Formal and informal interviews were held. Data have been analyzed statistically and presented qualitatively.
Findings: Children succeed or fail because of teacher expectations based on the children's socioeconomic, language, and self-esteem differences. Teachers are frustrated in their efforts to introduce innovations into the classroom because of the bureaucratic structure of the school system.
Duration: July 1967-January 1971.
Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DC-6 THE INCIDENCE OF ALLERGIC CONDITIONS IN CHILDREN WITH LEARNING DISABILITIES

Investigator(s): Lillian Ruth Powell, M.A., Chief Psychologist; and Margaret Y. Woods, Speech Pathologist, M.A., Dallas Society for Crippled Children, 2312 Oak Lawn Avenue, Dallas, Texas 75219; Richard Johnson, M.D., Chief, Pedi Allergy Clinic, Children's Medical Center; and Martha H. Hale, M.D., Clinical Instructor, Southwestern Medical School, 5323 Harry Hines, Dallas, Texas 75235.

Purpose: To test the hypothesis that children with learning disabilities exhibit higher incidence of allergic conditions, including asthma, than found in a population of children the same age with no learning disabilities.

Subjects: 100 children, ages 6 to 12, with learning disabilities that are not caused by cultural deprivation, emotional disturbance, mental retardation, any type of sensory loss, brain injury resulting from postnatal trauma, nor a physically handicapping condition such as cerebral palsy.

Methods: The children's intelligence, visual perception, motor coordination, psycholinguistic abilities, psychological behavior, vision, and auditory discrimination will be evaluated. Test instruments will include Wechsler Intelligence Scale for Children, Illinois Test of Psycholinguistic Abilities, Lincoln-Oseretsky Motor Development Scale, Goldman-Fristoe-Woodcock Test of Auditory Discrimination, Bender Visual Motor Gestalt, Frostig Developmental Test of Visual Perception, and a vision screening test. Medical testing will include a complete family history, scratch and intra-dermal allergy testing, nasal smear, and a physical examination. Accepted national statistics for the incidence of allergic conditions in a general pediatric population will be utilized instead of a control group. The incidence of allergic conditions in the experimental group will be correlated with national incidence of allergy in an adjusted chi-square analysis of the distribution.

Duration: 1970-1972.

Cooperating group(s): Carl B. and Florence E. King Foundation, Dallas Society for Crippled Children; Pedi Allergy Clinic, Children's Medical Center, Southwestern Medical School; Research and Evaluation Center for Learning, Dallas Independent School District; Special Education Division, Mesquite Independent School District.

27-DC-7 ANXIETY, CONFORMITY, AND SELF-PERCEPTION AS RELATED TO LEARNING DISABILITIES

Investigator(s): Norman S. Endler, Ph.D., Professor and Director, Graduate Programme in Psychology; and Harold A. Minden, Ph.D., Assistant Professor, Department of Psychology, York University, 4700 Keele Street, Downsview, Ontario, Canada.

Purpose: To compare normal achievers and children with learning disabilities on measures of anxiety, curiosity, motivation, conformity, self-concept, and achievement.

Subjects: 80 boys, ages 8 to 13, divided into two groups: 40 normal achievers and 40 boys with learning disabilities.

Methods: The boys with learning disabilities, in addition to a regular summer camp program, received a 6-week training program that focused on their deficit areas. Boys with learning disabilities were compared to normal achievers on pre- and postmeasures of anxiety, curiosity, self-concept, and achievement; and on premeasures only of motivation and conformity. The measures used were Wide Range Achievement Test (WRAT); H. I. Day Scale of Specific Curiosity; Kunca and Haywood Picture Motivation Scale; Endler, Hunt, and Rosenstein S-R Inventory of Anxiousness; Semantic Differential for Self-Concept; and measures of conformity obtained by a social communication apparatus.

Findings: Achievers obtained significantly higher scores than underachievers on reading, spelling, and arithmetic as measured by the WRAT. Achievers were more anxious and more conforming than underachievers.

Duration: 1970-1971.

Cooperating group(s): Integra Foundation (Camp Towhee); Camp White Pine.

27-DC-8 **IQ, ATTENTIVENESS, MOTIVATION, AND LETTER RECOGNITION AS FUNCTIONS OF LEARNING DISABILITIES IN THE NORMAL CHILD**

Investigator(s): Donadrian L. Rice, Senior in Psychology, Wofford College, Spartanburg, South Carolina 29301.
Purpose: To discover the variables that may contribute to slow reading, and, therefore, poor learning in children of normal intelligence.
Subjects: 240 second and third graders with normal IQs.
Methods: Subjects in five second grade and five third grade classes are tested during the normal school day in their classrooms. Pictures of mixed letters and numbers, that are similar in shape and size, are projected on a screen. The number of like letters on each slide ranges from three to five. There are a total of nine letters to a slide, and a total of 20 slides. Each slide is shown for 5 seconds followed by a blank slide for 5 seconds. The children are asked to identify all letters that are alike and to write the total for each slide on an answer sheet. The results will be studied with respect to the variables of IQ, attentiveness, motivation, and letter recognition.
Duration: October 1970-November 1970.

27-DD-1 **EFFECTS OF SUPPLEMENTARY AUDITORY AND VESTIBULAR STIMULATION ON A GROUP OF INSTITUTIONALIZED INFANTS**

Investigator(s): L. Casler and V. E. Seyfarth, Graduate School, State University of New York, Geneseo, New York 14454.
Purpose: To determine the effects of supplementary auditory and vestibular stimulation on institutionalized infants.
Subjects: 150 normal, full-term, illegitimate infants.
Methods: The infants will be divided into three groups: (1) one group will receive 30 minutes per day of supplementary auditory stimulation, consisting of nursery rhymes, as well as supplementary vestibular stimulation (They will be picked up an extra 12 times a day.); (2) a second group will receive only the supplementary vestibular stimulation; and (3) the third group will be the control group. Stimulation will begin in the first week of life and continue for 6 weeks. Data will be evaluated by means of the Gesell Schedules, administered at the age of 2 months. After adoption, the children will again be evaluated, using Gesell tests, at 9, 15, 21, and 27 months of age.
Duration: June 1969-May 1970.
Cooperating group(s): Association for the Aid of Crippled Children.

27-DD-2 **THE EFFECTS OF FAMILIARIZATION ON THE VERBAL INTELLIGENCE TEST PERFORMANCE OF SOCIALLY DISADVANTAGED YOUTHS**

Investigator(s): William B. Gillooly, Ph.D., Associate Professor, Department of Educational Psychology, Graduate School of Education, Rutgers University, New Brunswick, New Jersey 08903; and Charles L. Thomas, Ph.D., Research Professor, Teachers College, Columbia University, New York, New York 10027.
Purpose: To determine whether unfamiliarity with terms encountered in a verbal intelligence test affects the performance of socially disadvantaged children, and to determine if an easily administered treatment; e.g., familiarization, can remove this aspect of disadvantagement.

Subjects: 288 boys and girls in grades 4, 5, and 6 from disadvantaged neighborhoods in Baltimore, Maryland.
Methods: The experiment employed a 2 X 2 X 3 factorial design in which the experimental factors were (1) relevant or irrelevant familiarization treatments, (2) sex, and (3) grade levels. The number of correct answers on Subtest 7 of the California Short-Form Test of Mental Maturity, and the number of relevant terms spelled correctly when presented with four distractors were subjected to an analysis of variance.
Findings: No significant differences were found between treatment groups on Subtest 7. There were significant differences favoring the relevant familiarization group on the spelling test.
Duration: June 1968-June 1970.
Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare; Project Mission, Baltimore Public Schools.
Publications: A limited number of copies of the Final Report of this project are available from Professor Gillooly.

27-DD-3 A COMPARISON OF THE PEABODY PICTURE VOCABULARY TEST AND THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN ON THE LOWER INTELLIGENCE RANGE

Investigator(s): John Pilley, Ph.D., Professor of Psychology; and Glenn Hardin, Student, Wofford College, Spartanburg, South Carolina 29301.
Purpose: To compare the Peabody Picture Vocabulary Test (PPVT) and the Wechsler Intelligence Scale for Children (WISC) when administered to children of low intelligence.
Subjects: 100 boys and girls, ages 12 to 16, who are slow learners.
Methods: The PPVT and WISC are individually administered to the subjects. A statistical analysis will be made.
Duration: September 1970-December 1970.

27-DD-4 PATTERN OF IQ CHANGE OVER AGE AND ITS CORRELATES

Investigator(s): Robert B. McCall, Ph.D., Chairman and Senior Research Investigator, Fels Research Institute, Yellow Springs, Ohio 45387.
Purpose: To describe IQ changes over age in normal, middle class children; and to ascertain the parental behavior, demographic, and child personality social correlates of these patterns.
Subjects: 81 to 220 children from the Fels Longitudinal Study.
Methods: Children's intelligence quotients were assessed between ages 3 and 17. Patterns of IQ are determined by Tucker's technique of factor analyzing repeated assessments of the same individuals. This procedure extracts any major trend and then searches for subsequent trends in the residuals. Subjects are clustered into homogeneous pattern groups on the basis of their coefficients for each trend. Parental behavior and child personality variables are related by multivariate statistics.
Findings: Average IQ change was 24 points. This change does not represent random fluctuation about a mean constant value. Patterns of IQ change over age do not appear to reveal the heritability that general level of IQ does.
Duration: June 1970-undetermined.
Publications: *Science*, 1970, 170, (3958), 644-647.

27-DD-5 **CONCEPTUAL BEHAVIOR IN CHILDREN AS A FUNCTION OF INTELLIGENCE AND ACCULTURATION**

Investigator(s): James E. Ysseldyke, M.A., School Psychology Intern, Oakland Schools, Pontiac, Michigan 48056.
Purpose: To examine children's performances on a variety of conceptual tasks as functions of socioeconomic status and scores earned on measures of crystallized and fluid intelligence.
Subjects: 30 disadvantaged children, ages 7 to 9; 30 nondisadvantaged children comparable to the experimental group in age, sex, and scores on measures of fluid intelligence; 30 nondisadvantaged children comparable to the experimental group in sex and scores on a measure of crystallized intelligence.
Methods: The Science Research Associates Primary Mental Abilities Test and the Cattell Culture Fair Intelligence Test were administered to 203 children in grades 2 through 4. The experimental group and matched control groups were selected from this population. The three learning tasks employed in the study were a series of Piagetian tasks, nonverbal picture sorting, and verbal explanations of sorted material. Data will be analyzed using the Wilcoxen Matched Pairs Signed Ranks Test and analysis of variance.
Duration: September 1970-May 1971.

27-DE-1 **THE DEVELOPMENT OF NUMBER CONCEPTS IN YOUNG CHILDREN**

Investigator(s): Linda S. Siegel, Ph.D., Assistant Professor of Psychiatry, McMaster University, Hamilton, Ontario, Canada.
Purpose: To study the development of number concepts in young children.
Subjects: Children, ages 3 to 9; normal, retarded, and with learning disabilities.
Methods: Procedures used in the investigation included operant conditioning techniques and programmed instruction.
Findings: Concepts of magnitude and equivalence are understood at approximately the same point in development and before conservation occurs. The conception of ordination precedes seriation, which precedes addition.
Duration: October 1969-continuing.
Cooperating group(s): Medical Research Council of Canada.

27-DE-2 **THE EFFECTS OF VERBALIZATION AND MEMORY LOAD ON CONJUNCTIVE CONCEPT ATTAINMENT AND STRATEGY UTILIZATION**

Investigator(s): James D. McKinney, Assistant Professor, Department of Psychology, University of Rhode Island, Kingston, Rhode Island 02881.
Purpose: To explore the facilitative effects of overt hypothesis verbalization and the use of memory prompts on the efficiency of concept attainment and on the type of strategies employed by children in the solution of conjunctive problems.
Subjects: 48 normal elementary school children: 8 boys and 8 girls in each group of 8-, 10-, and 12-year-olds.

Methods: In a game-like task, children are asked to choose from an array of 16 stimulus items (pictures of flowers) the item that is most like the criterion item exhibited by the researcher. The stimulus items vary on four dimensions: color of flower, red or blue; size of flower, large or small; number of petals, 4 or 6; and color of stem, brown or green. Immediate feedback of correct or incorrect choice is indicated by a light over the chosen stimulus item. Concept attainment under three sets of conditions is studied: verbalization about possible solution versus no verbalization; a constant display of feedback (lights) on all chosen items versus a temporary display of feedback; and a single versus a double attribute concept attainment task.
Findings: A preliminary study with children, ages 8 and 10, under conditions of hypothesis verbalization and no verbalization, yielded significant age effects; the effect of verbalization was not found to be significant.
Duration: September 1970-June 1971.
Cooperating group(s): Johnston Public Schools; National Science Foundation.

27-DF-1 STRATEGY DIFFERENCES BETWEEN REFLECTIVE AND IMPULSIVE CHILDREN

Investigator(s): Wayne Adams, Ph.D., Assistant Professor, Department of Psychology, Colgate University, Hamilton, New York 13346.
Purpose: To determine if differences exist between the problem-solving strategies utilized by impulsive children and the problem-solving strategies utilized by reflective children.
Subjects: 80 middle class children: 40 children, age 6, and 40 children, age 8.
Methods: A three-choice probability learning task was used to assess problem-solving strategies. The relationship of sex, reflective or impulsive temperament, and age to the dependent variable was examined.
Findings: Differences were found between several strategies used by 6-year-old reflective and impulsive children. Differences were not found in the strategies used by the 8-year-old reflective and impulsive children.
Duration: March 1970-August 1970.

27-DF-2 VERBAL RESPONSES AND CHILDREN'S SHIFT IN JUDGMENT

Investigator(s): Suzanne Salzinger, Ph.D., Associate Research Scientist, Biometrics Research, New York State Department of Mental Hygiene, 722 West 168th Street, New York, New York 10032.
Purpose: To study the effect of the development of verbal response on the stability of physical judgments during the preschool years.
Subjects: Middle class, white nursery school children, ages 3 to 6; 50 to 100 subjects in each experiment.
Methods: The dependent variable is the child's judgment of the length of lines and rods. Independent variables are (1) the verbal response classes the child had to use in rendering judgments; e.g., number or color names and length related or not related nonsense syllables; and (2) the stimulus configurations present when the child learned to make judgments; e.g., either multiple stimuli or a single stimulus. Test data were collected by the psychophysical method of absolute judgment, under conditions of no anchor stimulus and a long anchor stimulus. Analyses

of variance and covariance and nonparametric techniques were used to assess the results.
Findings: Subjects evidence shift in their judgment of length more when trained under a multiple stimuli condition than a single stimulus condition. Subjects shift less when they use a relational response, than when they use a nominal response. Research continues in other modalities.
Duration: January 1969-December 1972.
Cooperating group(s): Research Foundation for Mental Hygiene, New York; National Institute for Child Health and Human Development, Public Health Service, U.S. Department of Health, Education, and Welfare.
Publications: *Developmental Psychology*, 1970, 2, 49-57.

27-DF-3 THE EFFECTS OF PERCEPTUAL AND VERBAL PRETRAINING UPON YOUNG CHILDREN'S PERFORMANCE ON A SPACIAL DISCRIMINATION PROBLEM

Investigator(s): Lawrence Goodlive, Doctoral Candidate, Department of Psychology, State University of New York at Stony Brook, Stony Brook, New York 11790.
Purpose: To test the effects of various combinations of pretraining on problem solving in young children, and to compile information related to the verbal-attentional controversy in children's discrimination learning.
Subjects: 30 boys and 30 girls, ages 4 to 5, enrolled in a public school preschool program.
Methods: In a 2 X 2 factorial design, four groups, respectively, will receive the following pretraining: (1) irrelevant experience (controls), (2) perceptual training on the relevant dimension of a subsequent discrimination task, (3) verbal labeling training of the relevant dimension, and (4) a combination of (3) and (4). The dependent variables are the number of children in each group who attain criterion, and the mean number of trials to criterion.
Duration: September 1970-June 1971.

27-DG-1 REMEMBERING PICTURES PRESENTED IN A RAPID SEQUENCE: A DEVELOPMENTAL STUDY

Investigator(s): Mary C. Potter, Ph.D., Lecturer, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.
Purpose: To examine the change from kindergarten age to adulthood in the capacity to recognize and retain pictures that are presented in a rapid sequence at rates between 250 and 1,000 milliseconds per picture.
Subjects: 32 subjects each in kindergarten, grades 1, 2, 4, and college.
Methods: Color advertisements were presented on 16 millimeter film. Each sequence of 16 pictures was followed by a test for recognition of 8 pictures, which had been interspersed with 8 distractors. One practice sequence and four test sequences were shown to each subject, one at each of four rates: 250, 333, 500, and 1,000 milliseconds per picture. The rates were counterbalanced over sequences. The rate of correct recognition, false recognition, and serial position effects were examined as a function of age and rate of presentation.
Findings: Net recognition accuracy improves from kindergarten to grade 1, and slightly from grade 1 to 2, but shows little improvement with age after that. The complex ability to identify and

retain visual material is well developed at a surprisingly early age.
Duration: July 1968-May 1970.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U.S. Department of Health, Education, and Welfare; Joint Center for Urban Studies of Massachusetts Institute of Technology and Harvard.

27-DG-2 STIMULUS SELECTION BEHAVIOR IN INFANCY

Investigator(s): R. F. Caron, Institute for Behavioral Research, 2426 Linden Lane, Silver Spring, Maryland 20910.
Purpose: To provide an experimental analysis of the effects of varied exteroceptive stimulation on infant development, and to determine the role of visual stimuli in arousing and maintaining the infant's stimulus-seeking behavior; i.e., the behavior by which he alters his stimulus field or affects the nature of the stimulation reaching his sense organs.
Subjects: Infants, ages 3 and 4 months.
Methods: Instrumental learning procedures will be used to assess the particular attributes of visual stimulation which maintain stimulus-seeking. Headturning has proven to be an experimentally viable response, and it has been brought under the control of heterogeneous visual reinforcement. This conditioned response is used to examine the reinforcing effectiveness of such visual stimuli properties as novelty and complexity.
Findings: Redundant visual feedback produces a decrement in the infant's instrumental behavior; whereas, continuously varying and complex visual stimulation maintains behavior at a high rate.
Duration: January 1970-December 1970.
Cooperating group(s): National Institute of Child Health and Human Development, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-DG-3 A PRELIMINARY INVESTIGATION OF THE INFLUENCE OF TIME AND PITCH ALTERATIONS UPON VOICE RECOGNITION

Investigator(s): Robert L. McCroskey, Ph.D., Professor of Logopedics, Wichita State University, 2400 Jardine Drive, Wichita, Kansas 67219.
Purpose: To identify the parameters that permit the identification of a familiar voice and to relate the results to theories of hearing.
Subjects: 15 male and 15 female normal hearing college students.
Methods: Subjects will be trained to 100 percent correct identification of six speakers who read intelligibility lists. The taped lists will be altered along time and pitch dimensions. Listeners will attempt to identify original speakers when only brief segments of their spoken phrases are audible, and when the pitch has been elevated and lowered.
Duration: October 1970-June 1971.
Cooperating group(s): Wichita State University.

27-DG-4 CHARACTERISTICS THAT DIFFERENTIATE DYSLEXICS FROM NONDYSLEXIC POOR READERS

Investigator(s): Irene W. Gaskins, Ed.D., Director, Hilltop School, Brookhaven and Avondale Roads, Wallingford, Pennsylvania 19086; and Lecturer, University of Pennsylvania, Philadelphia, Pennsylvania 19104.

Purpose: To determine characteristics that differentiate dyslexics from nondyslexics, and to determine the incidence of dyslexia in a total population.

Subjects: 29 dyslexic and 29 nondyslexic fourth grade boys, who were poor readers. Intelligence quotients ranged from 83 to 112, with a mean of 96. All dyslexics read at or below the first grade-second semester level. Nondyslexics read at a second grade-first semester level to a third grade-second semester level. Groups were similar with respect to home related factors, health factors, lateral dominance, kindergarten experience, school entrance age, absenteeism, speech problems, and estimates of motor ability.

Methods: Characteristics of subjects were studied by means of standardized tests (Wechsler Intelligence Scale for Children and Illinois Test of Psycholinguistic Abilities), nonstandardized measures (time and space orientation test, evaluation of spelling errors, and a sentence copying test constructed by the investigator), teacher ratings, and school records. Subjects were tested in a minimum of two individual sessions with a psychologist. Multiple discriminant analyses were used to examine the data statistically.

Findings: The dyslexic group and the nondyslexic group were significantly different on 23 test variables and on 8 subsets of these variables. The characteristics that differentiated dyslexics were the tendency to make numerous copying errors, a tendency to make extraneous spelling errors, and an inability to deal with simple time and space relationships.

Duration: January 1968-April 1970.

27-DG-5 SENSORY INTEGRATIVE PROCESSES AND LEARNING DISORDERS

Investigator(s): A. Jean Ayres, Ph.D., Visiting Associate Professor of Education, University of Southern California, University Park, Los Angeles, California 90007.

Purpose: To clarify the nature of types of sensory integrative dysfunction; to determine a combination of tests that are predictive of types of dysfunction and of academic success; and to examine the effect of sensory integrative therapy on learning disabilities.

Subjects: 148 boys and girls, ages 6 to 10, with learning disorders, and a control group.

Methods: R-technique factor analyses of scores on the Southern California Perceptual-Motor Test Battery, Illinois Test of Psycholinguistic Abilities, Slosson Reading Test, and Wide Range Achievement Test were performed. Subjects were matched in experimental and control groups for degree and type of dysfunction by computing regression scores derived from regression equations.

Findings: Major types of dysfunction were: postural and ocular, auditory language, form and space perception, tactile-motor planning, and hyperactivity and distractability.

Duration: July 1968-June 1971.

Cooperating group(s): Maternal and Child Health Service, California; Culver City Unified School District, El Segundo Unified School District, Manhattan Beach City School District, and Wiseburn School District, California.

27-DG-6 THE DEVELOPMENT OF PERCEPTUAL PROCESSES AS THEY RELATE TO HEMISPHERIC FUNCTIONAL ASYMMETRY IN NORMAL CHILDREN AND CHILDREN WITH SPECIFIC LEARNING DISABILITY

Investigator(s): Sandra F. Witelson, Ph.D., Assistant Professor of Psychiatry, McMaster University, Hamilton, Ontario, Canada.
Purpose: To elucidate the underlying deficits in children with specific deficits in learning ability.
Subjects: 35 to 60 children, ages 7 to 12, with diagnosed specific learning disability, seen at the McMaster Medical School Clinic; and controls.
Methods: All children are given an extensive clinical battery to determine if they exhibit specific learning disabilities. Children who meet the criteria are given a research battery, which consists of perceptual tests related to asymmetrical functioning of the two hemispheres in mediating cognitive processes.
Duration: April 1970-April 1972.
Cooperating group(s): Ontario Mental Health Foundation.

27-DG-7 THE DEVELOPMENT OF THE MUELLER-LYER ILLUSION IN CHILDREN AND COLLEGE STUDENTS

Investigator(s): Roger Howard, Ph.D., Assistant Professor; and Wayne Adams, Ph.D., Assistant Professor, Department of Psychology, Colgate University, Hamilton, New York 13346.
Purpose: To determine if previous experimental results, that indicate age differences in extent of illusion, can be reproduced when a different presentation method is employed, and to investigate the effect that the sex of the examiner exerts on the subject's perception of the illusion.
Subjects: 60 children, 20 each at ages 6, 7, and 8; and 20 college students. Subjects were from lower and middle class backgrounds.
Methods: The illusion was presented to each subject, and the subject was asked to indicate when equality between the lines was perceived. The procedure was repeated using blurred and dotted illusionary material. The independent variables studied were age of subject, sex of subject, and sex of examiner.
Duration: October 1970-December 1970.

27-DG-8 DEVELOPMENT OF THE AVERAGED ELECTROENCEPHALIC RESPONSE IN INFANTS AND YOUNG CHILDREN

Investigator(s): Robert Goldstein, Ph.D., Professor, Department of Communicative Disorders, University of Wisconsin, 905 University Avenue, Madison, Wisconsin 53706.
Purpose: To chart the development of various time-related components of the averaged electroencephalic response (AER) to sound from infancy through early childhood; to determine the relations between the maturation of the AER and the maturation of hearing, speech, and language functions; and to compare aberrations in the development of the AER and in the communicative functions in high risk babies.
Subjects: Study I: Normal children, ages birth to 5 years. Study II: Approximately 30 high risk newborns. Study III: 40 normal subjects, ages birth to 35 years. Study IV: at least 20 children, studied from birth through 24 months of age.

Methods: Four separate but closely related studies will constitute the major portion of the total research project. Short duration acoustic clicks will be presented binaurally at 60 and 80 decibels. Four stimulus conditions will be used at the two hearing levels. All test conditions and controls will be randomized with respect to rate and level. Insert receivers will be utilized with adults and older children; loudspeakers mounted in a special incubator will be used with newborns. Older subjects will be tested in a soundproof booth in the laboratory; newborns will be tested using a mobile equipment unit in the newborn nursery. All data will be recorded on tape and stored for later analysis. Analyses of data across subjects will focus on (1) the age at which early components can be identified, and (2) for all components, changes in latency and amplitude, and effects of stimulus rate as a function of age.
Findings: A preliminary study of filtering on the AER was done. Limited results indicate that the primary energy bands of the early components of the AER are below 600 cycles per second, with relatively small energy islands found up to 1,200 cycles per second. A sharp energy peak was observed at about 440 cycles per second, but preliminary investigation indicates that this component may be an instrumentation artifact.
Duration: March 1970-February 1973.
Cooperating group(s): National Institute of Neurological Diseases and Stroke, Public Health Service, U.S. Department of Health, Education, and Welfare.

27-DG-9 MEASUREMENT OF LISTENING ACCURACY SKILLS IN CHILDREN

Investigator(s): Merlin J. Mecham, Ph.D., Director, Department of Speech Pathology and Audiology, University of Utah, Salt Lake City, Utah 84112.
Purpose: To establish valid and reliable procedures to measure listening accuracy skills in children.
Subjects: 1,800 children in grades 1, 2, 3, 4, and 5.
Methods: Subjects were tested on a picture multiple choice intelligibility test in groups of 25 to 30, and also, individually. Test score means, standard deviations, and percentiles were computed for each grade level, and internal consistency was determined.
Findings: The test was found to be reliable and able to measure progressive listening accuracy as a function of age. Listening accuracy seems to be a developmental phenomenon. An incidental check showed listening accuracy to be rather closely related to reading ability.
Duration: 1968-1975.
Cooperating group(s): University of Utah Research Committee.

27-DG-10 NEONATAL AUDITION, LEARNING, AND INTELLECT

Investigator(s): Earl C. Butterfield, Ph.D., Research Coordinator, Mental Retardation Research Unit, University of Kansas Medical Center, University of Kansas School of Medicine, Kansas City, Kansas 66103.
Purpose: To refine procedures to evaluate auditory sensitivity of neonates; to determine if sensory feedback is reinforcing to neonates; and to relate neonatal responsiveness to sensory feedback to concurrent indices of subsequent intellectual development.
Subjects: Neonates, 24- to 48-hours-old, who weighed at least 5 pounds at birth, without

demonstrable physical defects, from the Newborn Nursery at the University of Kansas Medical Center.

Methods: The non-nutritive sucking of neonates is measured with a pressure transducer while making various types of auditory stimulation contingent upon the pressure changes created by sucking. Comparisons have been made between contingency conditions. Neonates, rewarded for sucking, receive auditory stimulation. Auditory stimulation is withheld when neonates are punished for sucking. These contingency conditions have also been compared to control conditions, in which auditory stimulation is either completely withheld or continuously presented regardless of the neonates' sucking behavior. Within the comparison of these contingency conditions, several types of auditory stimulation that vary in their frequency and intensity have been studied.

Findings: Data suggest that it is possible to obtain auditory sensitivity measures from neonates of less than 3 days of age, that neonates learn instrumental responses rapidly when contingent sensory stimulation is used as a reinforcer, and that the degree of a neonate's responsiveness to sensory feedback is predictive of his subsequent intellectual development.

Duration: June 1970-May 1973.

Cooperating group(s): Department of Pediatrics, University of Kansas Medical Center; National Institute of Child Health and Human Development, Public Health Service, U.S. Department of Health, Education, and Welfare.

Publications: Butterfield, E. C. and Siperstein, G. N. Influence of auditory stimuli upon non-nutritional suckle. Paper presented at the Third Symposium on Oral Sensation and Peception: The Mouth of the Infant, Bethesda, November, 1970.

27-DH-1 LINGUISTIC DEVELOPMENT IN CHILDREN FROM 6 to 10

Investigator(s): C. S. Chomsky. Radcliffe Institute, Undergraduate School, Harvard University, Cambridge, Massachusetts 02138.

Purpose: To determine the extent to which primary school children have achieved mastery of their native language, and to explore and describe the nature of disparities between adult grammar and child grammar.

Subjects: Children, ages 6 to 10.

Methods: Late language acquisition, beyond age 6, specifically in the area of syntax; children's knowledge and understanding of syntactic structures; and underlying linguistic competence respecting selected features of children's grammar will be studied. Comprehension of particular constructions in children of increasing ages will be tested through interviews in which they carry out tasks and answer questions up to the point at which it is found that their command of the structures is comparable to that of adults. Also considered will be the relevance of other developmental factors, such as IQ and reading experience, to variations in rate of syntactic acquisition.

Duration: July 1969-June 1970.

Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DH-2 THE LANGUAGE DEVELOPMENT OF DISADVANTAGED CHILDREN

Investigator(s): Rachel S. Sutton, Ph.D., University of Georgia, Athens, Georgia 30601.

Purpose: To determine the relationships of oral language and listening abilities to the reading and

writing abilities of disadvantaged children.
Subjects: 80 boys and 80 girls in urban and rural kindergarten and grades 1, 2, and 3.
Methods: The Peabody Picture Vocabulary Test and the Metropolitan Readiness Test are administered to the subjects at the beginning and end of kindergarten. Sequential Tests of Educational Progress (Listening Subtest) and Metropolitan Achievement Tests are administered at the end of grades 1, 2, and 3. Three of six groups in each grade use experimental materials, and three groups use traditional materials.
Findings: There is a positive relationship between listening and other language skills. A significant change in the language development of disadvantaged boys was noted in the groups using experimental materials.
Duration: September 1968-May 1972.
Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-DH-3 BLACK CHILDREN'S COMPETENCE IN WHITE ENGLISH

Investigator(s): H. Goehl, Ph.D., Professor of Speech; A. Gerber, M.A., Instructor; and B. Bunce, M.A., Graduate Student, Department of Speech, Temple University, Philadelphia, Pennsylvania 19122.
Purpose: To examine the control of White English exhibited by young native speakers of Black English.
Subjects: 60 black boys and girls, ages 9 to 11.
Methods: Black children imitated and translated sentences spoken in both Black and White English. Their ability to imitate White English sentences and to translate from Black to White English was assessed and compared.
Findings: Black children imitate White English more accurately than they translate from Black to White English; however, their ability to translate is substantial.
Duration: September 1970-December 1970.

27-DH-4 METALINGUISTIC PERFORMANCE AND COGNITIVE DEVELOPMENT IN CHILDREN FROM 5 TO 7

Investigator(s): Marjorie Holden, M.A., Graduate Student; and Walter MacGintie, Ph.D., Professor, Teachers College, Columbia University, New York, New York 10027.
Purpose: To determine if global stages exist and precede analytic stages in the development of children's language, and to determine if these stages of language development are related to the levels of operation described by Piaget.
Subjects: 100 white, middle class children in kindergarten and first grade.
Methods: Group tests were administered to obtain Deviation IQ levels and either reading readiness or reading performance scores. Operational level was determined by performance in several seriation tasks. Results will be correlated.
Duration: May 1970-May 1971.

27-DH-5 RESEARCH PROGRAM OF APHASIC INVOLVEMENTS IN CHILDREN

Investigator(s): Jon Eisenson, Ph.D., Director, Institute for Childhood Aphasia, Stanford University School of Medicine, 600 Willow Road, Palo Alto, California 94304.
Purpose: To study the cognitive, perceptual, and linguistic competence of children with language deficits due to suspected central nervous system involvement; to develop diagnostic techniques to evaluate the nature and the extent of the deficits; and to develop and test training materials and methods that are direct extensions of the clinical evaluation of each child's deficits.
Subjects: Children, ages 3 to 8, accepted for diagnostic examination or for training at the Institute for Childhood Aphasia.
Methods: Nonparametric methods for small group analyses were used to study the population.
Duration: September 1967-August 1973.
Cooperating group(s): Scottish Rite Foundation of California.
Publications: *Papers and Reports on Child Language Development*. Committee on Linguistics, Stanford University, March 1970 and December 1970. (Limited number of copies available on request.)

27-DH-6 SYNTACTIC DEVELOPMENT IN NORMAL AND EXCEPTIONAL CHILDREN

Investigator(s): Wilbur A. Hass, Ph.D., Shimer College, Mt. Carroll, Illinois 61053.
Purpose: To construct measures of phases in children's mastery of communication.
Subjects: I. 30 boys and girls at each of the following ages: 5, 6, 7, 9, 11, and 13. Children are of average intelligence, exhibit no gross language pathology, and reside in various regions of the United States. II. Mentally retarded residents of a state school. III. First and second graders from a rural community school.
Methods: Data will be collected from (1) free speech samples (Thematic Apperception Test stories), (2) cued immediate memory for sentences tasks, (3) articulation and speech perception tests, (4) Piagetian tasks, (5) tests of ability to learn novel language forms, and (6) tests of ability to perform phonological and syntactic transformations.
Duration: September 1967-September 1971.
Cooperating group(s): Early Education Research Center, University of Chicago.

27-DH-7 A LONGITUDINAL STUDY OF MODES OF SECOND LANGUAGE ACQUISITION

Investigator(s): A. E. Sidlauskas, Ph.D., Chairman, Department of Child Psychology, Child Study Centre, University of Ottawa, 265 Nicholas Street, Ottawa 2, Ontario, Canada.
Purpose: To investigate whether learning a second language follows the same pattern as the acquisition of the mother tongue; to study the socialization processes between two different language groups; to study use of the second language versus competency in it; and to demonstrate audiophonatory patterns of French and English as they emerge.
Subjects: 42 French- and English-speaking boys and girls, ages 4 to 6.
Methods: The children are divided equally into experimental and control groups. A clinical method will be employed to determine individual differences of sex, IQ, and social factors in

second language acquisition. Data will be collected from teachers' records, TV and tape recordings, and observations by independent observers who are members of various professions.
Duration: September 1970-December 1973.
Cooperating group(s): Department of Child Psychology, University of Ottawa.

Personality

27-EA-1 IDENTIFICATION AND ANALYSIS OF SOME ASPECTS OF EXPLORATORY BEHAVIOR (CURIOSITY) IN ELEMENTARY SCHOOL CHILDREN

Investigator(s): R. W. Peterson, Graduate School, University of California, Berkeley, California 94720.
Purpose: To identify, describe, and analyze the constant motor patterns identified with exploratory behavior; to determine how this behavior is related to variables of age, sex, and IQ; and to compare the ethological approach with interviews and teacher ratings as a means of assessing exploratory behavior.
Subjects: 120 elementary school children in four different age groups.
Methods: Each child will be filmed as he waits alone (in a room arranged to stimulate security and curiosity) for 10 minutes before an interview. Filmed behavior will be analyzed according to duration and frequency of responses. During the interview his preferences for objects, events, or situations which are familiar or novel will be noted. In addition, teachers will rate the degree of curiosity expressed by the children in the classroom. Data on filmed behavior, age, sex, IQ, interview scores, and teacher ratings will be analyzed.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-EB-1 A COMPARATIVE STUDY OF CHANGES IN SELF-CONCEPT: OPEN SPACE CONCEPT VERSUS SELF-CONTAINED CLASSROOM

Investigator(s): Norman L. Heimgartner, Ed.D., Assistant Professor of Elementary Education, University of Northern Colorado, Greeley, Colorado 80631.
Purpose: To determine if differences exist in the changes in self-concept of children who attend either an open space concept class or a self-contained class.
Subjects: 360 Anglo and Hispano children, ages 5 to 11.
Methods: The Children's Self-Social Constructs Tests, developed by Long, Henderson, and Ziller, will be administered to the subjects. A multiple regression model will be applied to determine if there are significant differences between the groups.
Duration: October 1969-May 1970.
Cooperating group(s): Laboratory School, University of Northern Colorado; Greeley Public Schools.

27-EB-2 GENITAL BEHAVIOR IN THE SECOND YEAR OF LIFE

Investigator(s): Eleanor Galenson, M.D., Associate Clinical Professor; Herman Roiphe, M.D., Assistant Clinical Professor; and Edward Sperling, M.D., Assistant Clinical Professor, Bronx Municipal Hospital Center, Albert Einstein College of Medicine, Pelham Parkway and Eastchester Road, Bronx, New York 10461.

Purpose: To explore the phenomenology and significance of genital behavior during the second year of life.

Subjects: Nine normal boys and girls, ages 1 to 2, who have developed normally, or who may have experienced early illness or separation from parents during their first year, but whose intellectual functioning has not been impaired.

Methods: Subjects, at age 1, attend a nursery setting four mornings a week. Data are collected, and observations are made by a research team. Historical information and the observations are arranged according to behavioral and metapsychological categories. Special attention is paid to the children's awareness of their bodies and sexual organs and to the significance of this awareness to the child. The research model is primarily a psychoanalytically oriented clinical model combined with systematic observation.

Findings: A significant percentage of children are aware of the genital area. Awareness of the genital area is associated with a high emotional charge. Children in the latter half of the second year develop syndromes of penis envy and castration anxiety which were previously attributed to older children.

Duration: July 1967-continuing.

Cooperating group(s): Albert Einstein College of Medicine.

27-EB-3 PERSONALITY, LEARNING, AND ACADEMIC ACHIEVEMENT

Investigator(s): Earl C. Butterfield, Ph.D., Research Coordinator, Mental Retardation Research Unit; and S. Joseph Weaver, Ph.D., Chief Psychologist, Children's Rehabilitation Unit, University of Kansas Medical Center, University of Kansas School of Medicine, Kansas City, Kansas 66103.

Purpose: To clarify the causal factors in the association of Locus of Control and Incentive Orientation with academic achievement; to determine if these two personality measures are predictive of achievement gain over time; to ascertain if additional personality variables will account for the variance in academic achievement; and to determine the reasons some children benefit and others do not benefit from typical instructional techniques.

Subjects: Sixth grade students in Kansas City, Kansas; college students. In several of the proposed studies the elementary subjects will be selected on the basis of their performance on one or more of the following measures: mental age, Kuhlman-Finch Intelligence Tests, Children's Locus of Evaluation and Control Scale, Incentive Orientation, Picture Motivation Inventory, and Test Anxiety Scale for Children.

Methods: Different methods will be employed in the proposed experiments. In two of the studies, subjects will be pretested on a personality measure; groups of subjects who scored high or low on the measure will be selected. The groups will then be given a relevant task to perform, and comparisons will be made of the performance of each group. Analyses of variance will be made to compare the data. Two of the studies will involve the prediction of scholastic achievement from various personality measures. Multiple regression analyses will be performed, percent of unique variances will be calculated, and significance tests will be conducted to determine the contribution

of each of the predictor variables. In another study various incentives will be given to randomly selected groups of subjects in a short-term memory task. The effect of incentive on performance will be measured by analyses of variance and chi-square tests.
Findings: Six percent of all individual differences in children's achievement are associated with differences in the extent to which children feel responsible for what happens to them (Locus of Control) and the extent to which they prefer intrinsic incentives to extrinsic incentives (Incentive Orientation).
Duration: May 1970-May 1972.

27-EC-1 VALUE CONFLICT IN ELEMENTARY SCHOOLS IN HAWAII

Investigator(s): T. Antoinette Ryan, Researcher, Professor, Project Director, Home and School Values Report, Education Research and Development Center, University of Hawaii, Wist Hall Annex 2, Room 124, 1776 University Avenue, Honolulu, Hawaii 96882.
Purpose: To determine (1) school values by identifying values held by teachers, administrators, support personnel, and pupils; (2) home values by identifying values held by parents; and (3) relationships of congruence and/or conflict of values within and between school and home.
Subjects: A sample of teachers, administrators, support personnel, and pupils (and their parents) in fifth grade classrooms in Hawaii.
Methods: The study will have four phases: (1) techniques of multidimensional scaling will be employed to construct instruments to measure education-related values; (2) instruments will be administered to all subjects; (3) results will be analyzed to identify value clusters indigenous to various groups in the sample; and (4) differences between home and school and among groups in the school will be quantified to reveal the extent of value conflict.
Duration: July 1969-continuing.
Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-EC-2 FAMILY SIZE ATTITUDES OF CHILDREN

Investigator(s): Peter Wernick, B.A., Research Assistant, International Population Program, Cornell University, Ithaca, New York 14850.
Purpose: To ascertain the development of family size attitudes in children, and to determine if children's perceptions of the population situation are relevant.
Subjects: A representative national sample of students in grades 6, 9, and 12.
Methods: A questionnaire survey and projective tests, involving pictures of families, will be used to obtain data.
Findings: A pilot interview study with 50 children in grades kindergarten through 12, and a pilot questionnaire study with 125 tenth grade students are being analyzed. Children as young as age 6 may have thoughts about their future family size and can state family size preferences.
Duration: February 1970-February 1972.

27-ED-1 PUNISHMENT AND AGGRESSIVE BEHAVIOR

Investigator(s): Howard Sloane, Ph.D., Associate Professor; and Steven Oliver, B.A., Educational Psychology Department, Bureau of Educational Research, and The Behavior Modification Training Center, University of Utah, 308 MBH, Salt Lake City, Utah 84112.
Purpose: To study the relationship between punishment and aggressive behavior in children.
Subjects: Aggressive children.
Methods: An individual subject research design is used. Three baseline measures of aggressive behavior are collected from a subject at different times of the day for several days. Then a time-out from reinforcement contingent upon aggressive behavior is programmed during one period, and a random time-out during another period. No time-outs at all are programmed during the third period. At different times some of these conditions are withdrawn.
Findings: Tentative early results on one child indicate that punishment, which is not response contingent, leads to an increase in aggressive behavior.
Duration: October 1970-March 1971.

27-ED-2 GALVANIC SKIN RESPONSE OF PRESCHOOL CHILDREN IN RELATION TO FILM-MEDIATED AGGRESSIVE AND NONAGGRESSIVE MODELS

Investigator(s): Joseph W. Maxwell, Ph.D., Head, Department of Family and Child Development, Auburn University, Auburn, Alabama 36830.
Purpose: To determine types of filmed violence or aggression that evoke a negative emotional response in preschool children.
Subjects: 15 boys and 15 girls, ages 4 to 5, enrolled in nursery school and kindergarten at Auburn University.
Methods: Subjects will be shown selected films that depict aggressive and nonaggressive models while galvanic skin response and pulse are monitored. Each child will serve as his own control after baseline measurements are established. Strength of emotional reaction will be related to age, sex, type of aggressive model (human versus cartoon), direct versus indirect aggression posed, and television viewing habits.
Duration: January 1970-January 1971.

27-EF-I CROWD HYSTERIA IN A JUNIOR HIGH SCHOOL

Investigator(s): Evelyn L. Goldberg, Sc.D., Doctoral Student; Paul V. Lemkau, M.D., Chairman, Department of Mental Hygiene, School of Hygiene and Public Health; and Gerald Wiener, Ph.D., Professor Tulane University, New Orleans, Louisiana 70118.
Purpose: To describe the events and people involved in a case of crowd hysteria, and to determine the differences between hysterical subjects and controls.
Subjects: 53 students, ages 12 to 16, attending an all black school, who reacted hysterically to a cry of "Gas!" Female (N=47) mean IQ was 99.5. Male (N=6) mean IQ was 90.1. An *ex post facto* matched control group of students (N=105) who did not become hysterical was selected from all students who were exposed to the potentially hysteria-producing situation.
Methods: Data were collected from records, structured interviews, and administration of the

Minnesota Multiphasic Personality Inventory and the Self-Administered Health Questionnaire. Data were obtained for 93.5 percent of the female sample. Statistical analyses were made.
Findings: The percentage of hysteria occurring in the population was 27.6 for females; 4.0 for males. Significant differences were not found between the groups on school history, demographical, or sociological variables. Significant differences were obtained on variables related to health, psychological composition, delinquency; and, in males, sexual identification.
Duration: June 1968-November 1970.
Cooperating group(s): School of Hygiene and Public Health, Johns Hopkins University.

27-EG-1 COGNITIVE AND PERSONALITY VARIABLES IN CHILDREN RELATED TO HUMOR PREFERENCE

Investigator(s): Lynn Rouff, Ph.D. Candidate, Clinical Psychologist, Philadelphia General Hospital, 34th and Civic Center Boulevard, Philadelphia, Pennsylvania 19104.
Purpose: To determine whether identifiable relationships exist between cognitive style, personality organization, and types of situations that children find humorous.
Subjects: Elementary school children.
Duration: September 1969-June 1971.

27-EG-2 STIMULUS CHANGE AS DRIVE AND INCENTIVE FACTORS IN YOUNG CHILDREN'S INSTRUMENTAL PERFORMANCE

Investigator(s): Richard Endsley, Ph.D., Associate Professor, School of Home Economics, University of Georgia, Athens, Georgia 36001; and Lesley A. Diehl, Ph.D., Assistant Professor, Department of Educational Psychology, State University College at Oneonta, Oneonta, New York 13820.
Purpose: To test a two factor theory of curiosity motivation.
Subjects: 80 middle class children, ages 4 to 5, of average intelligence.
Methods: Each subject will participate in 20 trials consisting of a pre-exposure period and a lever-pull response. Variations of two factors, amount of pre-exposure to a pair of toys and incentive level, are manipulated to form the four experimental conditions. Pre-exposure time is 10 or 30 seconds; incentive level presented is designated as low or high determined by whether the toys delivered after the level pull are the same (low incentive) or entirely different (high incentive). Motivational effects will be measured by lever-pull start and movement latencies. These latencies will be used to calculate speed scores that will be subjected to statistical analyses.
Findings: Inspection of the data indicated that an additional condition of minimal pre-exposure should be added.
Duration: October 1970-February 1971.
Cooperating group(s): Bugbee School, Oneonta, New York.

27-EG-3 **DEPENDENCY CONFLICT AND DELINQUENCY IN FOURTH, FIFTH, AND SIXTH GRADE BOYS**

Investigator(s): Howard T. Blane, Ph.D., Director of Research, Research and Training Center in Vocational Rehabilitation, School of Education, University of Pittsburgh, Crump Building, Pittsburgh, Pennsylvania 15213.
Purpose: To evaluate theoretical statements about the role of dependency conflict as an antecedent condition of delinquency, and to provide further evidence on the reliability and validity of the recently developed Children's Dependency Scale.
Subjects: 75 boys enrolled in grades 4, 5, and 6 in a lower middle class urban public school.
Methods: The subjects will be group tested using the Children's Dependency Scale, a measure of delinquency proneness; the Children's Rosenzweig Picture-Frustration Study; the Children's Manifest Anxiety Scale; and the Children's Social Desirability Scale.
Duration: October 1970-August 1971.
Cooperating group(s): Office of Child Development, U.S. Department of Health, Education, and Welfare.

Social

27-FA-1 **SOCIAL COMPARISON AND THE NATURE OF THE TASK IN CHILDREN'S GROUPS**

Investigator(s): Beth H. Hannah, M.Ed., Graduate Student, Bryn Mawr College, Bryn Mawr, Pennsylvania 19010.
Purpose: To investigate the effect of identical task assignment on children's motivation to compete.
Subjects: Elementary school girls.
Methods: Girls complete a creative task independently and as a member of a cooperating group. Observations are analyzed through a checklist.
Duration: April 1969-April 1970.
Cooperating group(s): Lower Merion Township Schools, Philadelphia, Pennsylvania.

27-FA-2 **AN INVESTIGATION OF LEADERSHIP QUALITIES OF KIBBUTZ-RAISED YOUNG MEN**

Investigator(s): Aaron Antonovsky, Ph.D., Israel Institute of Applied Social Research, 19 George Washington Street, P.O.B. 7150, Jerusalem, Israel.
Purpose: To determine whether kibbutz-raised young men become more successful officers than their family-raised peers, and to determine the factors responsible for this difference relevant to the Army's interest in the factors responsible for the development of leadership qualities in Army officers.
Subjects: Israeli kibbutz- and family-raised young men serving in the Army.

Methods: The subjects were divided into two equal groups matched on education, ethnic origin, intelligence, and combat versus noncombat assignment. They will be compared on data obtained through interviews, psychological testing, and their Army records. The study focuses on three types of variables: (1) the dependent variable–the "good officer" is one who successfully motivates and directs his men, (2) predictor variables–officer activities previously identified as positively related to good officership, and (3) conditioning variables–officer qualities hypothesized as related to the predictor variables. The conditioning variables will be measured during Officer Candidate School. Other variables will be measured after 1 year of service as an officer. Officer candidates' attitudes and values towards the Army have also been measured.
Duration: July 1969-June 1970.
Cooperating group(s): European Research Office, U.S. Army Medical Research Branch.

27-FC-1 USE OF DRUGS AMONG STUDENTS IN DENMARK IN 1970

Investigator(s): Jacob Vedel-Petersen, Program Director; and Boel Ulff-Møller, Research Associate, Danish National Institute of Social Research, Borgergade 28, Copenhagen, Denmark.
Purpose: To investigate the number of student drug users and abusers, and to determine the correlation between drug use and (1) different subcultures, and (2) dropout from university studies.
Subjects: Danish university students.
Methods: Postquestionnaires and interviews.
Duration: 1970-1973.

27-FC-2 FROM PREADMISSION TO FOLLOW-UP WITH ADOLESCENT HEROIN USERS

Investigator(s): Alex Richman, M.D., M.P.H., Associate Director, Department of Psychiatry; Marvin E. Perkins, M.D., M.P.H., Director, Department of Psychiatry; and Madeline Amiel, M.D., Beth Israel Medical Center, 307 Second Avenue, New York, New York 10010.
Purpose: To describe the demographic and drug use characteristics, hospital confinement, and follow-up findings of a sample of young heroin users.
Subjects: 40 children under 15, 741 youths ages 15 to 17, and 1,079 youths ages 18 to 19 admitted during 1969 to the Morris J. Bernstein Institute of the Beth Israel Medical Center for detoxification service.
Methods: Analyses will be made of case records. Standardized interviews, telephone inquiries, mail questionnaires, and direct interviews of a sample of adolescents will be conducted.
Duration: July 1970-June 1971.
Publications: Findings were presented at the annual meeting of the American Public Health Association, Houston, November 1970. *American Journal of Public Health* (in press).

27-FC-3 SOCIAL PSYCHOLOGY AND EPIDEMIOLOGY OF STUDENT DRUG USAGE

Investigator(s): Joel W. Goldstein, Ph.D., Assistant Professor of Psychology; James H. Korn, Ph.D., Associate Professor; Walter H. Abel, Ph.D.; and Robert M. Morgan, Ed.D., Associate

Professor, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213.

Purpose: To examine student drug usage.

Subjects: 3,010 freshmen through graduate students at Carnegie-Mellon University.

Methods: Questionnaires concerning academic and demographic characteristics, drug attitudes, drug usage, drug effects, and drug intent were mailed to the student body. (Approximately 68 percent were returned.) Two follow-up studies of the freshmen participants are planned.

Findings: Preliminary results suggest that drug usage is often a means of coping with life problems. Further research is being conducted to delineate the drug use-coping relationship in more detail.

Duration: July 1965-September 1972.

Cooperating group(s): Maurice Falk Medical Fund; National Institute of Mental Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

Publications: The social psychology and epidemiology of student drug usage: Report on phase one. Carnegie-Mellon University Department of Psychology Report No. 70-18; Final Report, NIMH Project No. MH-15805, June 1970. (Available on request.)

SPECIAL GROUPS OF CHILDREN

Physically Handicapped

27-GA-1 **PERSISTENT PULMONARY DYSFUNCTION FOLLOWING SPECIFIC LOWER RESPIRATORY DISEASES DURING CHILDHOOD**

Investigator(s): Daniel Wiseman, M.D., Assistant Professor of Pediatrics; and Bernard Portnoy, M.D., Associate Professor of Pediatrics and Community Health, Department of Pediatrics, Children's Division, University of Southern California Medical Center, 1200 North State Street, Los Angeles, California 90030.

Purpose: To demonstrate (1) the acute effects of diseases on pulmonary airway mechanics and ventilation/perfusion relationships, (2) the bacterial and viral pathogens associated with these diseases, and (3) the persistence of pulmonary dysfunction after a complete clinical recovery in children who experience acute, severe lower respiratory disease.

Subjects: 50 children, 4 years old or younger, without previous history of major respiratory disease, selected randomly from hospital admissions; and a matched control group.

Methods: During the first year of this 5-year study, detailed histories, physical examinations, and chest X-rays will be collected to establish clinical diagnosis and estimate the severity of disease. Clinical studies will include viral and bacteriological isolation prior to therapy; arterial blood pH, pCO_2, and pO_2; and urinary nitrogen tension measurements during the acute and convalescent phases of the illness. Clinical and physiological surveillance will be maintained at specific intervals, both before and after discharge from the hospital, until complete physiological recovery criteria are met.

Duration: July 1969-June1970.

Cooperating group(s): The Council for Tobacco Research, USA.

27-GC-1 **HYPERPHENYLALANINEMIA: ITS RELATIONSHIP TO CLINICAL PHENYLKETONURIA**

Investigator(s): Harry A. Waisman, Ph.D., M.D., Professor of Pediatrics and Director, Joseph P. Kennedy, Jr. Laboratories, Department of Pediatrics, University of Wisconsin, 1300 University Avenue, Madison, Wisconsin 53706.

Purpose: To identify cases of hyperphenylalaninemia in order to differentiate them from ordinary phenylketonuria (PKU). Hyperphenylalaninemic cases will not require treatment of low phenylalanine diet.

Subjects: 10 patients, ages 1 to 8, with hyperphenylalaninemia, but wrongly diagnosed as having PKU.

Methods: This group of patients will be compared with normal individuals of the same age and with phenylketonuric patients, within their own or other families. Children will be observed on intelligence, behavior, and growth parameters.
Duration: November 1964-not reported.
Cooperating group(s): Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-GC-2 VISUAL CURIOSITY IN DEAF AND HEARING CHILDREN

Investigator(s): Alan O. Ross, Ph.D., Professor, Department of Psychology; and Michael Sobol, B.S., Research Assistant, State University of New York at Stony Brook, Stony Brook, New York 11790.
Purpose: To ascertain the differences in preference for visual complexity of deaf and hearing children.
Subjects: 40 deaf and 40 hearing children, ages 3½ to 15 years, matched for age, sex, and intellectual status.
Methods: Random shapes with varying numbers of sides are presented to the children in pairs: one shape with few sides, and the other shape with many sides. The child's looking time, scanning behavior, and direction of glance are recorded by means of electronic sensors affixed to the skin near the corner of each eye. An eye movement record is maintained on dynograph tape for later analysis. Data will be analyzed for age, hearing status, visual preference, scanning, and looking time dimensions.
Duration: September 1969-December 1970.
Cooperating group(s): Cleary School for the Deaf, Ronkonkoma, New York; Three Village Central School District #1, Stony Brook.

27-GC-3 FACTORS RELATED TO LANGUAGE LEARNING IN HEARING-IMPAIRED CHILDREN

Investigator(s): Edna K. Monsees, Ph.D., Associate Director, Children's Hearing and Speech Center, Washington, D. C. 20001.
Purpose: To investigate factors in the case histories and test performance of children with impaired hearing to discover which factors are related to and predictive of their language accomplishments.
Subjects: 69 children, mean age 5½ in June 1970, who were born in the critical period following the 1964 rubella epidemic, and who are enrolled in special hearing classes.
Methods: A special Language Achievement Rating Scale was developed, and ratings on this scale were the dependent variable. Forty-two independent variables included age, sex, hearing loss, IQ, medical history, family history, and scores on a battery of motor-perceptual, cognitive, psycholinguistic, social, and behavioral tests and rating scales.
Duration: May 1969-not reported.

27-GC-4 **STUDIES IN DISTRACTABILITY**

Investigator(s): Anita K. Lampel, Ph.D., Project Coordinator, Child Guidance and Development Clinic, Children's Memorial Hospital, 2300 Children's Plaza, Chicago, Illinois 60614.
Purpose: To compare brain-damaged with non-brain-damaged children on measures of distractability, activity, fine-motor coordination, and other dimensions in order to evaluate the components of and the factors that contribute to the brain-damage syndrome.
Subjects: 80 brain-damaged and 80 normal children, ages 5 to 9. (Ten brain-damaged and 10 non-brain-damaged children were evaluated at each of four IQ levels: 50-70, 70-90, 90-110, and 110-130, with six boys and four girls in each group.)
Methods: The study employs a 2 X 2 X 2 X 4 factorial design in which the experimental factors were (1) brain-damaged versus non-brain-damaged, (2) sex, (3) age, and (4) IQ levels; with activity, distractability, fine-motor coordination, Wechsler Intelligence Scale for Children subtest scores, Stanford Achievement Test scores, Bender-Gestalt scores, and Draw-A-Person scores as dependent variables. The children are tested individually. Original, previously validated instruments are used: (1) a self-winding wristwatch redesigned to provide objective measures of activity, and (2) simple tests of distractability.
Duration: January 1970-December 1975.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare; Children's Memorial Hospital.

27-GC-5 **THE DEVELOPMENT AND DESCRIPTION OF SYNTACTIC STRUCTURE IN THE LANGUAGE OF DEAF CHILDREN**

Investigator(s): Stephen P. Quigley, Ph.D., Professor of Special Education; and Jonnie Geis, Ph.D., Assistant Professor of Linguistics, Institute for Research on Exceptional Children, University of Illinois, Urbana, Illinois 61801.
Purpose: To study the comprehension and production of syntactic structure by deaf children using generative-transformational grammar as a model.
Subjects: 600 deaf students, ages 8 to 18.
Methods: The study will include (1) collecting written language samples, (2) a longitudinal analysis of the written language samples, and (3) a national testing program during the third year of the study in 12 schools for deaf students.
Findings: The deviant syntactic structures used by many deaf children seem to be generated by definite rules.
Duration: June 1969-May 1974.
Cooperating group(s): Bureau of Education for Handicapped, Office of Education, U. S. Department of Health, Education, and Welfare.

27-GC-6 **THE USE OF SENSORY INFORMATION BY NONVERBAL CHILDREN**

Investigator(s): Isabelle Rapin, M.D., Associate Professor, Neurology and Pediatrics; Barbara Wilson, Ph.D.; and James Wilson, Ph.D., Albert Einstein College of Medicine, 1300 Morris Park

Avenue, Bronx, New York 10461.

Purpose: To identify basic neuropsychological deficits in children with language disorders.

Subjects: Approximately 20 language impaired children in each of two age groups (4 to 6 and 9 to 13); hearing impaired children.

Methods: After thorough medical, audiometric, vestibular, and psychological examinations are given, a language evaluation will be performed. Tests will be given to determine the level of functioning of the visual, auditory, and tactile modalities in sequencing and memory tasks. Electroencephalogram responses of the older children will be noted while the children are responding to complex visual, auditory, and verbal stimuli. A training program using behavior modification techniques will be used to overcome particular deficits of children.

Findings: Medical evaluation revealed an incidence of neurological abnormalities almost as high in a control hearing impaired group as in an experimental language disorder group. Both hearing impaired and language disorder children perform poorly on sequencing tasks and short-term memory items.

Duration: December 1968-not reported.

Cooperating group(s): St. Joseph's School for the Deaf; New York Public School System.

27-GC-7 **TURNER'S SYNDROME: EMOTIONAL IMPLICATIONS FOR AFFECTED GIRLS AND THEIR PARENTS**

Investigator(s): Ellen Rothchild, M.D., Assistant Professor of Child Psychiatry; and Ruth P. Owens, M.D., Assistant Professor of Pediatrics, Case Western Reserve University, Cleveland, Ohio 44106.

Purpose: To determine the influence of Turner's syndrome on emotional development; to determine the role of early versus late induction of puberty; and to determine aspects of treatment that assist optimal psychological adaptation.

Subjects: 25 girls, ages infancy to adulthood, with Turner's syndrome and their families; healthy girls; and girls with other disorders of statural and anatomical sexual development.

Methods: Data are obtained by (1) monthly interviews with subjects and their parents concurrent with medical investigation and treatment, (2) endocrine tests, (3) psychological examinations before and after estrogen treatment, (4) ward observations, (5) home visits, and (6) school reports. Comparisons are made with somatically healthy girls, and with girls who experience other disorders of statural and anatomical sexual development.

Findings: Girls who became aware of the disorder in their second decade showed delays and distortions in social and emotional development that were more marked in early than in late adolescence. Choice of coping mechanisms was influenced by parental reactions and by the girls' perceptions and intellectual understanding of the disorder. Induction of puberty early in the second decade assisted self-definition, but active delineation of the disorder was rare before late adolescence. By the end of the second decade certain elements of feminine identity were still retarded in development.

Duration: 1966-1976.

Cooperating group(s): Department of Medicine and Department of Surgery, University Hospital, Cleveland, Ohio.

Publications: Paper presented to the American Academy of Child Psychiatry in Denver, October 1970.

27-GC-8 COGNITIVE STRUCTURE AND SYMPTOM: CONSEQUENCES FOR THE SELF-CONCEPT AND BODY IMAGE

Investigator(s): Edward Clifford, Ph.D., Associate Professor of Medical Psychology, Department of Psychiatry, and Associate Professor of Psychology in Plastic Surgery, Department of Surgery, Duke University Medical Center, Durham, North Carolina 27706.
Purpose: To assess how the interactions between cognitive organization and symptoms produce differential self-concepts and body images.
Subjects: Cleft lip-palate adolescents constitute the experimental group; 100 normal boys and girls, ages 11 to 17, constitute the control group.
Methods: Laboratory measures of body image have been devised to measure specified components of the body image. Data are collected by rating scales, cognitive measures, attitude measures, and questionnaires.
Duration: 1968-1974.
Cooperating group(s): National Institute of Dental Research, Public Health Service, U. S. Department of Health, Education, and Welfare; Division of Plastic Surgery, Duke University Medical Center.

27-GE-1 GENETIC COUNSELING WITHIN THE FRAMEWORK OF A CLEFT TEAM

Investigator(s): Dr. Simon T. Winter, M.D., Head, Pediatric Department; and H. Dar, M.Sc., Geneticist, Rothschild Hospital, Haifa, Israel.
Purpose: To assess the contribution of genetic counseling to the total care of a cleft child and his family.
Subjects: Two groups of children: (1) a retrospective group of children with clefts previously treated by the cleft team without a participating geneticist, and (2) a prospective group of newborns with clefts to be treated by the team and a geneticist.
Methods: A geneticist, part of the cleft team, will see the infant and family as soon as possible after birth and then at regular intervals in the prospective group. A single detailed interview and examination will be made of each child in the retrospective group. The two groups of families will be compared to determine if regular genetic counseling from an earlier age is a useful contribution to the care of the cleft child.
Duration: 1968-1970.
Cooperating group(s): Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-GE-2 RADIOGRAPHIC STUDY OF HIP DYSPLASIA IN CEREBRAL PALSY

Investigator(s): John V. Basmajian, M.D., Professor of Physical Medicine and Anatomy; Carl Strom, M.D., Assistant Professor of Physical Medicine; Thomas E. Whitesides, Jr., M.D., Assistant Professor of Surgery (Orthopedics); Ted F. Leigh, M.D., Professor of Radiology; and N. Iwamoto, M.D., Research Fellow, Emory University, Atlanta, Georgia 30322.
Purpose: To design a device to properly position and adequately shield patients against radiation;

to technically evaluate the new radiographic technique for measuring the angle of anteversion and the coxa-femoral angle; to differentiate between true coxa valga and coxa valga caused by increased anteversion; to detennine the age when initial manifestations of hip dysplasia are first evidenced radiographically; and to determine prevalence of hip dysplasia, subluxation, and/or dislocation.

Subjects: 200 cerebral palsied children.

Methods: This project combines roentgenographic study to utilize a new radiographic technique that accurately measures the proximal femoral parameters with a thorough clinical evaluation. Data will be compiled concerning incidence of hip dysplasia and the role of weak hip abductors, spasticity, delayed weight-bearing, coxa valga, and/or anteversion in the pathogenesis of progressive hip dysplasia. A year after the initial evaluation, a half sampling of the original study group will be done by age stratification.

Duration: July 1969-June 1972.

Cooperating group(s): Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-GE-3 AMBLYOPIA AND STRABISMUS TREATMENT

Investigator(s): Merrill J. Allen, O.D., Ph.D., Professor of Optometry, Division of Optometry, Indiana University, Bloomington, Indiana 47401.

Purpose: To determine new and more efficient means of normalizing the vision and eye positions of children without the use of surgery.

Subjects: Males and females, ages 6 months to 22 years, selected without regard to previous surgery, treatment, or lack of it, and precipitating factors. The selection of subjects was limited to individuals with some remaining vision.

Methods: All patients admitted to the Optometry Clinic with a reduced acuity or a turned eye are given a complete eye examination with a recording of eye movements and a photograph of eye turn. A program of treatment that utilizes a unique instrument, patented by the researcher, is detailed depending upon the type and amount of the anomaly.

Duration: September 1970-June 1971.

27-GE-4 AMELIORATION OF NEUROLOGICALLY-IMPOSED SPEECH DEFECTS BY ELECTRONIC MANIPULATION OF AUDITORY FEEDBACK

Investigator(s): Martin J. Berko, Ph.D., Senior Research Associate, Department of Psychology, Cornell University, Ithaca, New York 14850.

Purpose: To develop electronic prostheses and training devices for persons afflicted with cerebral palsy and similar speech defects.

Subjects: 300 cerebral palsied and brain-damaged boys and girls with severe speech defects, ages 3 to 16.

Methods: Auditory speech feedback is varied along several dimensions; including intensity, auditory frequency range, delay times, and phase relationships. Speech samples are recorded for each subject under each experimental condition, with subject's speech under unmodified feedback

condition as a control. Speech samples then receive double blind evaluations by trained auditors on the basis of preestablished criteria including intelligibility, fluency, and voice quality.

Findings: Certain combinations of feedback intensity variations and frequency range modifications result in noteworthy and sustained improvements in speech intelligibility and fluency in a large number of cases. Age and the clinical type of neurological disability affect the degree of improvement noted.

Duration: 1967-not reported.

Cooperating group(s): United Cerebral Palsy Research and Educational Foundation; Cornell University; United Cerebral Palsy Association of New York State.

27-GE-5 AN EVALUATION OF THE CRIPPLED CHILDREN'S PROGRAM OF LOUISIANA STATE HEALTH DEPARTMENT

Investigator(s): Gerald E. A. Miller, M.D., M.P.H., Preventive Medicine Resident and Doctoral Candidate, Tulane University, P. O. Box 60630, New Orleans, Louisiana 70160.

Purpose: To evaluate the Crippled Children's Program, and to determine if children who receive the full course of treatment in this program become more productive members of society than children who receive an incomplete course of treatment, treatment from other sources, or no treatment.

Subjects: 200 persons, at least 21 years old, who participated in the Crippled Children's Program.

Methods: A retrospective study will be conducted.

Duration: July 1970-June 1971.

Cooperating group(s): Tulane School of Public Health and Tropical Medicine; Louisiana State Health Department; Public Health Service, U. S. Department of Health, Education, and Welfare.

27-GF-1 STUDIES OF FAMILY INTERACTION, LANGUAGE ACQUISITION, AND DEAFNESS: STUDY I

Investigator(s): Hilde S. Schlesinger, M.D., Project Director; and Kathryn P. Meadow, Ph.D., Research Specialist, Langley Porter Neuropsychiatric Institute, 401 Parnassus Avenue, San Francisco, California 94122.

Purpose: To describe the development of reciprocal parent-child communication in families with a deaf child, and to test the hypothesis that family interaction in these families is similar to family interaction found among minority group families where the communicative mode is stigmatized.

Subjects: 40 deaf children: two separate control groups; one with 20 Caucasian hearing children, and one with 20 Negro hearing children.

Methods: Over a 5-year period data will be collected yearly on the deaf children by family interviews, videotaped segments of mother-child interaction, teacher ratings, and school observations.

Duration: March 1968-August 1975.

Cooperating group(s): Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-GF-2 **STUDIES OF FAMILY INTERACTION, LANGUAGE ACQUISITION, AND DEAFNESS: STUDY II**

Investigator(s): Hilde S. Schlesinger, M.D., Project Director; and Kathryn P. Meadow, Ph.D., Research Specialist, Langley Porter Neuropsychiatric Institute, 401 Parnassus Avenue, San Francisco, California 94122.
Purpose: To follow-up previous research on the social setting of language acquisition.
Subjects: Four deaf children and their families.
Methods: These four families, who utilize the manual language of signs and fingerspelling, will be videotaped in their homes at monthly intervals. Tapes will emphasize language input as well as the child's oral and manual expressive language.
Duration: March 1968-August 1975.
Cooperating group(s): Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

Mentally Retarded

27-HA-1 **BALTHAZAR SCALES OF ADAPTIVE BEHAVIOR, FORMS I AND II**

Investigator(s): Earl E. Balthazar, Ph.D., Research Scientist, Central Wisconsin Colony and Training School, 317 Knutson Drive, Madison, Wisconsin 53704.
Purpose: To measure self-help skills and social adaptation in severely and profoundly mentally retarded children.
Subjects: 483 institutionalized, ambulant, severely and profoundly mentally retarded children.
Methods: Procedures involved (1) direct observation, (2) development of subscale item pool, (3) transformation of items into separate scales, (4) analysis of variance, and (5) factor analysis. Control and treatment groups were used in individual studies.
Duration: 1964-1971.
Cooperating group(s): Northern Wisconsin Colony and Training School, Chippewa Falls, Wisconsin; Dixon State School, Dixon, Illinois; Rehabilitation Center, Central Wisconsin Colony and Training School, Madison, Wisconsin.
Publications: *American Journal of Mental Deficiency*, 1969, 74, (3), 353-360 and 361-368; *Zwakzinnigheid en Zwakzinnigenzorg*, July 1970.

27-HC-1 **MEMORY PROCESSES OF AVERAGE AND RETARDED PERSONS**

Investigator(s): Earl C. Butterfield, Ph.D., Research Coordinator, Mental Retardation Research Unit, University of Kansas Medical Center, University of Kansas School of Medicine, Kansas City, Kansas 66103.
Purpose: To determine the extent to which recall deficits of children and retardates are caused by

either acquisition or retrieval problems, and to investigate the acquisition and retrieval processes in normal adults prior to further investigations with children and retardates.
Subjects: Normal and retarded school children and university students.
Methods: This study will follow the procedures developed by Belmont and Butterfield to measure the acquisition and retrieval processes involved in short-term memory. Subjects will be permitted to pace their acquisition of a list of letters. Inter-item pause time will be measured to obtain patterns of rehearsal. These rehearsal patterns correspond closely to the subjects' introspective reports of their acquisition strategies. To evaluate retrieval processes, subjects will be asked to recall the position of a probe letter at the end of a list. The latency between the onset of the request for recall of the probe letter and subject's response will be measured. Different positions in several lists will be probed to determine response latencies for every presentation position. Analysis of variance will be used to analyze data.
Findings: Children and retardates exhibit acquisition deficits that could account for their inferior recall.
Duration: June 1970-May 1971.
Cooperating group(s): National Institute of Child Health and Human Development, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: *Journal of Experimental Psychology* (in press).

27-HC-2 FAIRVIEW SELF-HELP SCALE

Investigator(s): Robert T. Ross, Ph.D., Chief of Research, Fairview State Hospital, Costa Mesa, California 92626.
Purpose: To develop an instrument for parents or caretakers to use to measure the development of self-help skills in severely and profoundly retarded children.
Subjects: Retarded children.
Methods: The scale was standardized on normal children up to age 10 and adapted for severely and profoundly retarded children. Repeated measurements and factor analyses produced a scale of 34 items that covered motor dexterity, self-help skills (toilet training, dressing, eating, grooming), communication, social interaction, and self-direction.
Duration: April 1967-June 1970.
Publications: The scale is available from Fairview State Hospital, P.O. Box 20191, Sacramento, California 95814.

27-HC-3 FAIRVIEW LANGUAGE DEVELOPMENT SCALE

Investigator(s): Alan Boroskin, M.A., Research Assistant, Fairview State Hospital, Costa Mesa, California 92626.
Purpose: To validate a language development scale to use with severely and profoundly retarded subjects; and to determine the relationship between language age, mental age, and behavioral age.
Subjects: 150 severely and profoundly retarded patients in a state hospital for the mentally retarded.

Methods: The Language Scale, an IQ test, and the Fairview Self-Help Scale are administered to the subjects.
Findings: Partial analyses indicated a correlation of .851 between language age and mental age, and a correlation of .831 between language age and behavioral age.
Duration: July 1970-September 1971.

27-HK-1 FEASIBILITY OF TRAINING MOTHERS OF MENTAL RETARDATES IN A DAY CARE CENTRE

Investigator(s): P. D. Boaz, M.A., M. Litt., Clinical Psychologist, Director, Bala Vihar Research Project, Bala Vihar, Halls Road, Kilpauk, Madras-10, India.
Purpose: To demonstrate simple teaching techniques to mothers of retarded children so that the children may have home training, and to ascertain the advantages gained by the children and the maternal changes in attitude after different periods of training.
Subjects: Four matched groups of children, each group consisting of 11 boys and 4 girls; divided on the basis of no training, 6-, and 12-months training of mothers and children, and 18-months training of only the children.
Methods: The development of skills in personal care, motor control, and comprehension will be measured by a five-point scale at the beginning of the experiment and once every 6 months for 18 months. The significance of improvement made by different groups of children under different conditions will be determined by analysis of variance.
Duration: July 1968-January 1971.
Cooperating group(s): U. S. Department of Health, Education, and Welfare; Bala Vihar, Home for Retarded Children.

Gifted

27-IA-1 CREATIVE PRODUCTION IN GIFTED YOUNG ADULTS THROUGH SIMULTANEOUS SENSORY STIMULATION

Investigator(s):Irving A. Taylor, Ph.D., Director, Creativity Program, Center for Creative Leadership, P.O. Box 3265, Greensboro, North Carolina 27402.
Purpose: To induce creative openness, a necessary prerequisite for creativity, through experimental manipulation of sensory stimulation.
Subjects: 17 gifted white adolescents, age 17.
Methods: Subjects were exposed over a 5-week period to visual, auditory, olfactory, gustatory, and somesthetic stimulation. Fifteen minutes before and after the stimulation period, subjects drew pictures that were evaluated for openness.
Findings: Creative openness can be induced or enhanced through application of simultaneous sensory stimulation.

Duration: July 1969-not reported.
Cooperating group(s): Superior and Gifted Project, Western Carolina University.
Publications: Paper presented to the National Association for Gifted Children, New Orleans, November 1969.

Emotionally Disturbed and Mentally Ill

27-JA-1 ETIOLOGY AND PROGNOSIS IN CHILDHOOD PSYCHOSIS

Investigator(s): Janet L. Brown, Chief Psychologist, James Jackson Putnam Children's Center, 244 Townsend Street, Boston, Massachusetts 02121.
Purpose: To fully utilize the historical, behavioral, and follow-up information available on children who were diagnosed as psychotics at an early age.
Subjects: 350 persons diagnosed at ages 2 through 6 at the Putnam Center.
Methods: Ratings will be made on the 350 records of all variables (whether from previous research or theory) that appear likely to contribute to an understanding of etiology and prognosis. To establish diagnostic subclusters, relationships will be determined between these ratings and subsequent follow-up material obtained from 0 to 20 years later.
Duration: April 1970-March 1973.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-JA-2 THE MEASUREMENT OF PSYCHOLOGICAL STATES OF CHILDREN THROUGH THE CONTENT ANALYSIS OF VERBAL BEHAVIOR

Investigator(s): Louis A. Gottschalk, M.D., Professor and Chairman, Department of Psychiatry and Human Behavior, College of Medicine, University of California at Irvine, Irvine, California 92664.
Purpose: To develop methods to assess transient and more permanent psychological states in elementary school children.
Subjects: 100 normal boys and girls, ages 6 to 12; and 100 boys and girls with various medical and psychiatric syndromes.
Methods: Tape recorded 5-minute speech samples in response to standardized instructions will be obtained from each subject. The standardized instructions will follow the procedures described in a series of studies carried out with adults: Gottschalk, L. A. and Gleser, G. C. *The Measurement of Psychological States Through the Content Analysis of Verbal Behavior.* Berkeley, Los Angeles: University of California Press, 1969; and Gottschalk, L. A.; Winget, C. N.; and Gleser, G. C. *Manual of Instructions for Using the Gottschalk-Gleser Content Analysis Scales: Anxiety, Hostility, Social Alienation-Personal Disorganization.* Los Angeles: University of California Press, 1969.

Duration: November 1970-October 1972.
Cooperating group(s): College of Medicine, University of California at Irvine.

.27-JB-1 RELATION BETWEEN PARENTAL INTERPERSONAL STYLES AND THEIR CHILDREN'S PSYCHOLOGICAL DISTANCE

Investigator(s): Alexander Tolor, Director, Institute for Human Development, Fairfield University, Fairfield, Connecticut 06433.
Purpose: To determine the relationship between parental interaction patterns and relationship modes in normal and disturbed children.
Subjects: 33 emotionally disturbed children, mean age 9 years; and 203 normal children, ages 3 to 17.
Methods: Parental past life styles, that varied in degrees of closeness or distance, were measured on the History of Interpersonal Distance Scale. The children's interpersonal distance patterns were measured by the Kuethe Social Schemata Technique. Comparisons were made between matched emotionally disturbed and control families.
Duration: 1969-1970.
Cooperating group(s): Child Guidance Clinic, Waterbury, Connecticut.

27-JB-2 OPERATIONAL THINKING IN MENTALLY ILL ADOLESCENTS

Investigator(s): Sandra Lerner, Doctoral Candidate; Ildni Bie, Doctoral Candidate, School of Education, Boston University, Boston, Massachusetts 02215; and Paul Lehrer, Ph.D., Assistant Professor of Psychology, Rutgers University, New Brunswick, New Jersey 08903.
Purpose: To determine the ability of mentally ill adolescents to reason operationally, and to determine the factors that are the bases of their difficulties in learning arithmetic.
Subjects: 35 mentally ill, hospitalized adolescents, average age 18, whose IQ scores range from 60 to 118.
Methods: Each subject was tested twice by two trained examiners. The Piagetian conservation tasks of amount, weight, and volume were administered to determine if subjects operated at a preoperational or operational level of thinking. Responses were taped and were scored by two raters. The Wide Range Achievement Test (WRAT) was used to measure mathematical ability.
Findings: Subjects with an IQ less than 80 scored lower on the WRAT and conservation tasks than did subjects with an IQ greater than 80. The conservation of volume task was more difficult than the conservation of amount and weight tasks. Almost 50 percent of subjects with an IQ of greater than 80 failed the volume task, but gave operational answers to the amount and weight tasks. An ability to reason operationally on the volume task was prerequisite to score at or above the seventh grade level in math. Operational reasoning seemed to be more vulnerable to psychotic regression than the ability to do mathematic problems.
Duration: 1968-1970.
Cooperating group(s): Department of Psychiatry, Tufts University School of Medicine; National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-JB-3 PREREQUISITES FOR SKILL ACHIEVEMENTS

Investigator(s): Mayin L. Bing, M.A., Psychologist; and Richard H. Smith, M.D., Psychiatrist, Children's Unit, Metropolitan State Hospital, Waltham, Massachusetts 02154.
Purpose: To determine if a group of behavior skills observed in children under 6 occurs along developmental lines.
Subjects: 75 children, chronological ages 3 to 12 years, mental ages below 5 years; selected, on the basis of gaze aversion and manneristic, repetitive play from psychotic children who do not have any diagnosed neurological diseases.
Methods: Each child is evaluated, using observations and parent inverviews, on over 200 behaviors characteristic of children under 6 years. Behaviors, that are achieved by all children who perform a specific behavior, are identified as prerequisite skills.
Findings: A preliminary evaluation of 50 psychotic children, on 100 behavior items, found significant prerequisite characteristics among several developmental skills.
Duration: 1964-1972.

27-JB-4 DRUG USE IN PSYCHIATRIC PATIENTS

Investigator(s): Melvin Cohen, Ph.D., Research Associate, Hillside Hospital, Glen Oaks, New York 11004.
Purpose: To study the relationship between psychiatric illness, psychological and social factors, and drug abuse.
Subjects: 120 males and females, ages 15 to 25, admitted to Hillside Hospital between October 1968 and January 1970.
Methods: Patients who are drug users were compared with control patients of similar ages who do not use drugs. Patients' behavior prior to hospitalization, during hospitalization, and at 6-months posthospitalization was studied by interviews, observations, and self-reports. Patients' families were interviewed to obtain developmental and pathological behavioral data.
Duration: May 1968-April 1971.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-JB-5 SOCIAL COGNITION IN AUTISTIC CHILDREN

Investigator(s): William B. Jennings, M.S., Psychological Service Worker, Division of Psychological Services, Memphis Board of Education, 2597 Avery Avenue, Memphis, Tennessee 38112.
Purpose: To determine if autistic children attain concepts that are based on social attributes with less facility than they attain concepts that are nonsocial in nature and are based on the perceptual characteristics of the stimulus.
Subjects: 15 to 20 youths, ages 9 to 14, diagnosed (according to Rimland's E-2 checklist) as exhibiting infantile autism; controls, matched with the experimental group on mental age and short-term verbal memory.
Methods: During Trial 1, subjects will be taught concurrently four concepts (social or nonsocial);

each one represented by a picture. Responses will be nonverbal. After the correct responses to these pictures have been learned, a second set of pictures will be presented that represent the same concepts (Trial 2). The subjects' first responses will reveal if they have learned the concept. If the concept has not been learned, the correct response is taught as in Trial 1. Other trials are presented similarly. The dependent variable is the number of trials required to respond correctly to the first presentation of the picture representing the concept. Analysis of variance design will be used to analyze data.

Duration: January 1971-May 1971.

Cooperating group(s): Walden House, Nashville, Tennessee; Memphis Board of Education.

27-JD-1 PEPTIC ULCER IN CHILDHOOD: EMOTIONAL AND PSYCHOLOGICAL FACTORS

Investigator(s): George H. Pollock, M.D., Ph.D., Director of Research, Institute for Psychoanalysis, 180 North Michigan Avenue, Chicago, Illinois 60601; and H. David Sackin, M.D., Director, Child Psychiatry Center, Milwaukee Childrens Hospital, Milwaukee, Wisconsin 53233.

Purpose: To investigate the emotional and psychological factors involved in producing and maintaining peptic ulcer in childhood, and to study the mother of the afflicted child and other members of his family.

Subjects: 13 children with peptic ulcer, their parents, and siblings.

Methods: The hypotheses under investigation stem from the psychosomatic specificity series that has been investigated at the Chicago Institute for Psychoanalysis. Information relevant to the hypotheses was obtained by recorded inverviews.

Duration: 1968-1971.

Cooperating group(s): Institute for Psychoanalysis; Milwaukee Childrens Hospital.

Publications: Alexander, Franz; French, Thomas M.; and Pollock, George H. (Eds.) *Psychosomatic Specificity, Volume I: Experimental Study and Results.* Chicago and London: The University of Chicago Press, 1968.

27-JH-1 THE EFFECT OF TREATMENT STRUCTURE ON DEVELOPMENT IN AUTISTIC CHILDREN

Investigator(s): Eric Schopler, Ph.D., Director; and Robert Reichler, M.D., Co-Director, Child Research Project, Department of Psychiatry, North Carolina Memorial Hospital, Chapel Hill, North Carolina 27514.

Purpose: To examine the effects of structured (adult-directed) sessions and unstructured (child-directed) sessions on the learning and adaptation of autistic children.

Subjects: Five autistic children.

Methods: The children were exposed to four structured sessions followed by four unstructured sessions, and the cycle was repeated. Each session was rated by time-sampling on five rotated variables: attention, affect, relatedness, vocalization, and psychotic behavior. Group means were analyzed by condition. Individual change scores were examined in relation to independent measures of developmental level.

Findings: Children tend to react more favorably to structured sessions than to unstructured sessions. Individual differences showed that autistic children on a higher developmental level were

better able to utilize relatively unstructured sessions than those functioning on a lower developmental level.
Duration: May 1969-June 1970.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: *Archives of General Psychiatry* (in press).

27-JH-2 THE DEVELOPMENT OF SELF-OBSERVATION CAPACITIES IN EMOTIONALLY DISTURBED CHILDREN THROUGH THE USE OF VIDEOTAPE

Investigator(s): Alan R. Gruber, D.S.W., Director of Research; Eugene Aronowitz, Ph.D., Associate Director; and Dean M. Coe, B.S., Director of Camping, Boston Children's Service Association, 3 Walnut Street, Boston, Massachusetts 02108; and Larry P. Thompson, M.A., Director of Media, New England Materials Instruction Center, Boston University, Boston, Massachusetts 02215.
Purpose: To measure the behavior change in emotionally disturbed children as a result of viewing their own behavior in candid situations on videotape.
Subjects: 100 emotionally disturbed boys and girls, ages 8 to 12, in residence for 1 month at a summer treatment camp.
Methods: The behavior of the children will be filmed on videotape while they participate in the camp program. Two groups will be randomly constituted; one will watch edited tapes depicting innocuous scenes in which they participated, and the other group will watch tapes demonstrating their disturbed behavior. A series of psychological tests will be administered, and behavioral profiles will be completed by the camp staff.
Duration: July 1970-February 1972.
Cooperating group(s): New England Materials Instruction Center; Boston University School of Education.

27-JH-3 THERAPY EFFECTIVENESS AS A FUNCTION OF SYMPTOM DURATION, TYPE OF DISTURBANCE, AND NATURE OF TREATMENT TERMINATION

Investigator(s): Theodore Jacob, Ph.D., Assistant Professor, Department of Psychology, University of Pittsburgh; and Max G. Magnussen, Ph.D., Chief Psychologist, Pittsburgh Child Guidance Center, Pittsburgh, Pennsylvania 15213.
Purpose: To replicate and extend previous findings that indicate interaction between symptom duration and treatment outcome; and to evaluate type of disturbance, time since cessation of treatment, and age of child during treatment in terms of this interaction.
Subjects: 150 closed cases of children, ages 5 to 16, from the Pittsburgh Child Guidance Center will be selected, excluding cases of children with obvious psychotic or organic disturbance.
Methods: Factors to be studied are (1) long-term versus short-term symptom duration, (2) treatment terminators versus treatment remainers, (3) conduct disorders versus personality disorders, (4) time since cessation of treatment, and (5) age of child during original treatment. Questionnaires will be sent to the children's parents to request information on the child's present

emotional status, and to inquire if additional treatment has been considered or sought for the identified patient, for other siblings, or for the parents since the original treatment program.
Duration: October 1970-May 1971.
Cooperating group(s): Pittsburgh Child Guidance Center.
Publications: *Psychotherapy: Theory, Research and Practice* (in press).

27-JH-4 **CHANGES IN INTELLECTUAL TEST PERFORMANCE OF EMOTIONALLY DISTURBED CHILDREN AS A FUNCTION OF PSYCHOTHERAPY AND TYPE OF PROBLEM DISTURBANCE**

Investigator(s): Theodore Jacob, Ph.D., Assistant Professor, Department of Psychology, University of Pittsburgh, Pittsburgh, Pennsylvania 15213.
Purpose: To discover the effects of therapeutic procedures on aspects of intellectual functioning in emotionally disturbed children with conduct problems as opposed to emotionally disturbed children with personality problems.
Subjects: 155 males, ages 5 to 15, with personality or conduct problems, treated at local outpatient agencies. Children who reflect obvious psychotic or organic disturbance will be excluded.
Methods: Factors to be considered are (1) treatment versus no treatment, (2) conduct disorder versus personality problem, and (3) age of child. The Wechsler Intelligence Scale for Children (WISC) will be administered on two occasions separated by a period of 5 months. Change scores will be analyzed for each of the three factor scores obtained from Cohen's factor analysis of the WISC: Verbal Comprehension, Freedom from Distractability, and Perceptual Organization. The data from each age level will be analyzed by separate one way analysis of covariance statistics.
Duration: November 1969-June 1972.
Cooperating group(s): Pittsburgh Child Guidance Center; St. Frances Hospital; University of Pittsburgh.

27-JH-5 **FOLLOW-UP OF SCHOOL PHOBIC CHILDREN AS YOUNG ADULTS**

Investigator(s): Sherwood Waldron, Jr., M.D., Clinical Instructor, Albert Einstein College of Medicine, Bronx, New York 10461.
Purpose: To assess the relationship of childhood neurosis and treatment to adult mental health.
Subjects: 25 school phobics and 25 neurotics, mean age 21 years, whose symptoms began at ages 7 to 13; 25 controls, mean age 21.
Methods: Structured interviews conducted by a child psychiatrist were held in the subjects' homes. Previous psychiatric records were evaluated independently by other psychiatric personnel.
Duration: July 1969-December 1971.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-JH-6 **PREVENTIVE INTERVENTION, APPLIED PSYCHOANALYTIC TREATMENT OF CHILDREN, AGES 3 TO 6, UNDER STRESS AND IN EARLY STAGES OF EMOTIONAL DISORDER**

Investigator(s): Dr. G. Kliman, Foundation for Research in Preventive Psychology, Port Chester, New York 10573.
Purpose: To deal with psychological stresses and early life emotional disorders in preschool children as early as possible, and to multiply the effectiveness with which child therapy time is used.
Subjects: Preschool children, ages 3 to 6.
Methods: A psychoanalytically trained therapist spends 6 hours a week treating four to eight child patients individually, during free play periods in a nursery classroom setting. He participates in their activities and observes their interactions and creative efforts. He makes interpretations to each child when appropriate. When one child's attention span or emotional tolerance has ended, the analyst turns to another child. Two teachers remain with the children during the analyst's visit and report the children's later responses.
Duration: June 1970-May 1971.
Cooperating group(s): Grant Foundation.

27-JH-7 **MODELING AND OPERANT CONDITIONING IN CHILD THERAPY**

Investigator(s): Paul W. Clement, Ph.D., Director, Child Development Center, Graduate School of Psychology, Fuller Theological Seminary, 190 North Oakland Avenue, Pasadena, California 91101.
Purpose: To apply principles derived from modeling and operant conditioning theories to decrease anxiety and to increase prosocial behaviors in withdrawn children.
Subjects: Withdrawn children, ages 7 to 9; 40 boys and 40 girls will be treated each year for a period of 4 years.
Methods: Professionals, mothers, peers, and machines are being evaluated as therapists. Each year four types of treatment will be tested, with the most effective treatment of that year becoming one of the four treatments tested the following year. Data for analysis will include observational records, results of psychological tests administered to the children and their mothers, and behavior rating inventories completed by mothers, fathers, and teachers. A 1-year posttherapy follow-up will be conducted.
Findings: The use of token reinforcement in outpatient groups increases the therapeutic impact of the clinical psychologist or child psychiatrist.
Duration: 1965-1974.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: Published reports of the first 2 years of the project, and mimeographed progress reports of current stages of the project, may be obtained from the project director.

27-JI-1 **TO ESTABLISH A GROUP HOME PROVIDING RESIDENTIAL AND DAY CARE TREATMENT FACILITIES FOR SEVERELY DISTURBED CHILDREN, AGES 3 TO 8**

Investigator(s): Agnes M. Plenk, Ph.D., Director; and Thomas A. Halversen, M.D., Medical Director, Holladay Children's Center, 2007 South 13th Street East, Salt Lake City, Utah 84105.
Purpose: To provide a therapeutic living experience for seriously disturbed, nonfunctioning young children 5 days a week; to provide accepting, positive, reality-oriented parental figures as models; to gradually phase children into homes during weekends and vacations prior to adoption; and to find alternatives for foster home placement.
Subjects: Six boys and girls, ages 3 to 8, at any one time. Since fall 1967, 16 children have been served.
Methods: The treatment will consist of (1) behavior modification when indicated; (2) individual therapy twice a week; (3) individual attention using foster grandparents, volunteers, and house parents; (4) community experiences; e.g., gym, swimming, eating out and having guests for dinner; (5) weekly casework with weekend foster parents and/or adoptive parents; and (6) interpretive group treatment.
Findings: Children are able to form positive relationships with adults and peers and show development of more appropriate affect and learning of behavior patterns which make adoptions possible. To date four children have achieved success in adoptive homes and are in school. Five children have returned home and attend public school (although one has been institutionalized). Contact has been lost with three children, and it is assumed that their adjustment is only marginal. Four children remain at the group house.
Duration: 1967-1970.
Cooperating group(s): Junior League of Salt Lake; The Grant Foundation, New York City.

Socially Deviant

27-KD-1 **IDENTIFICATION OF JUVENILE OFFENDERS IN VARIOUS CULTURES: IMPLICATIONS FOR PREVENTION AND TREATMENT**

Investigator(s): Sheldon Glueck, Ph.D., Roscoe Pound Professor of Law, Emeritus; and Eleanor Glueck, Research Criminologist, Harvard Law School, Cambridge, Massachusetts 02138; Ryuichi Hirano, Professor, School of Law, Tokyo University, Tokyo, Japan; and numerous investigators in several countries.
Purpose: To determine the relative effectiveness of the Glueck Social Prediction Table to identify potential delinquents in various countries.
Subjects: Juveniles in New York City, West Germany, France, Italy, Puerto Rico, Japan, and Czechoslovakia.
Methods: Investigators used the methods described in *A Manual of Procedures for Application of the Glueck Prediction Table.* New York: New York City Youth Board, October, 1964.
Duration: 1952-not reported.
Cooperating group(s): Research is funded by sources in each country.

27-KE-1 DELAWARE DELINQUENCY STUDY

Investigator(s): Frank R. Scarpitti, Ph.D., Chairman, Department of Sociology, University of Delaware, Newark, Delaware 19711; and Richard M. Stephenson, Ph.D., Professor, Department of Sociology, Douglass College, Rutgers University, New Brunswick, New Jersey 08903.

Purpose: To analyze the social characteristics of delinquents at various points in the judicial process.

Subjects: 14,630 youths, ages 20 and younger, who appeared before the New Castle County Family Court in Delaware 1966 to 1969, for other than motor vehicle violation offenses; 10,000 youths from New Castle county, ages 20 and younger, with police contact 1966 to 1969; 2,000 public school youths, ages 15 to 18.

Methods: Contact data were obtained from police contact slips and family court records. Questionnaires designed to measure self-evaluation, opportunity perception, feelings of powerlessness, delinquency proneness, and family controls were given to a sample of 1,000 delinquents and 2,000 high school students. Data will be analyzed for rate differences of social characteristics at each step in delinquency processing, for social characteristics that may be associated with these rates, and for comparisons among delinquents and between delinquents and students on attitudinal scales.

Duration: 1969-1971.

Cooperating group(s): Crystal Trust; DuPont Endowment; Delaware Agency to Reduce Crime; Division of Urban Affairs, University of Delaware.

27-KH-1 PERSONALITY AND VOCATIONAL PREFERENCES AMONG DRINKING DELINQUENTS

Investigator(s): Howard T. Blane, Ph.D., Director of Research, Research and Training Center in Vocational Rehabilitation, School of Education, University of Pittsburgh, Crump Building, Pittsburgh, Pennsylvania 15213.

Purpose: To replicate, refine, and expand research on personality distinctions related to four drinking styles of delinquents whose antisocial behavior has been concurrent with the use of alcohol.

Subjects: 100 white, male, lower middle class, juvenile delinquents, ages 14 to 16, who are on probation or are institutionalized.

Methods: Subjects will be interviewed about alcohol and drug use, vocational interests, and preferences. The Blane Dependency Situation Test, the Embedded Figures Test, the Rosenzweig Picture-Frustration Study, the Children's Picture Information Test (Fe, So, and Re Scales), the Children's Manifest Anxiety Scale, the Children's Social Desirability Scale, and the Barrett-Lennard Relationship Inventory will be administered to the subjects.

Duration: October 1970-August 1971.

Cooperating group(s): Allegheny County Juvenile Court; Social and Rehabilitation Service, U. S. Department of Health, Education, and Welfare.

Publications: *Quarterly Journal of Studies on Alcohol* (in press).

27-KJ-1 **A THREE GENERATION STUDY OF THE EFFECT OF FAMILY PATTERNS ON SCHOOL ACHIEVEMENT AND DELINQUENCY OF BLACK CHILDREN**

Investigator(s): Lee N. Robins, Ph.D., Professor of Sociology in Psychiatry, School of Medicine, Washington University, 4940 Audubon Avenue, St. Louis, Missouri 63110.
Purpose: To study the relationship of the behavior patterns of adolescents' parents, grandparents, aunts, and uncles to the school success and delinquency of the adolescents.
Subjects: About 250 youths who will be over 18 by 1975. Subjects are offspring of a previously studied group of 235 black males.
Methods: Interviews with the subjects' fathers have obtained extensive information concerning with whom the child lived and the behavior problems of the subjects' parents, grandparents, and paternal aunts and uncles. Identification materials, subjects' birth records, fathers' welfare records, and the subjects' and their parents' school and police records will be obtained.
Duration: July 1970-August 1975.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-KK-1 **GUIDES TO YOUTH SERVICE BUREAUS, A KEY TO DELINQUENCY PREVENTION**

Investigator(s): Sherwood Norman, A.B., Director; Perry Hall, M.S.W., Consultant; and Alice Falkenstein, M.S.W., Consultant, Prevention and Youth Correction Services, National Council on Crime and Delinquency, 44 East 23rd Street, New York, New York 10010.
Purpose: To define the purposes of Youth Service Bureaus, and to provide guidelines for their establishment and operation.
Methods: Evaluative, on-site studies of existing Youth Service Bureaus cited location and described the purpose, auspices, funding, history, operation, organizational structure, administration, program, and evaluation procedures of each bureau.
Findings: Public and private agencies generally resist working with acting-out children and youth. Existing Youth Service Bureaus tended to limit functions to short-term counseling and referral without follow-up, or failed to develop missing community resources. Only one bureau focused on modifying systems that contributed to delinquent behavior.
Duration: January 1969-April 1970.
Cooperating group(s): Pinkerton Foundation; National Council on Crime and Delinquency.

27-KK-2 **DELINQUENCY INTERVENTION PROGRAM IN THE CARBONDALE COMMUNITY HIGH SCHOOL**

Investigator(s): Richard C. Pooley, M.S., Project Director, Instructor, Center for the Study of Crime, Delinquency, and Corrections, Southern Illinois University, Carbondale, Illinois 62901.
Purpose: To identify and define means to reorient delinquency-prone youths in the high school and community setting.
Subjects: Approximately 50 youths (principally male), ages 14 to 18. Subjects are identified as delinquent-prone if they are on probation or have exhibited frequent maladaptive behavior; e.g., fighting, stealing, and truancy.

Methods: By pairing the subjects with university graduate student Big Brother-type counselors, appropriate behavior change was induced through a variety of counseling strategies. Two diagnostic and evaluative testing instruments were administered to the subjects: the Minnesota Multiphasic Personality Inventory (MMPI) and the Rotter I-E Scale. Graduate students were instructed in counseling techniques based on the experimental analysis of behavior, reality therapy, and the development of human potential, and they experimented with various procedures.
Findings: The MMPI proved to be a sensitive indicator of delinquent-proneness, while the Rotter I-E Scale did not adequately serve to discriminate this feature. The kind of counseling activity used in the program can be a valuable learning experience for students preparing for careers in corrections, vocational counseling, education, or community agency work.
Duration: February 1968-August 1971.
Cooperating group(s): Carbondale Community High School, District #165; Research and Coordinating Unit, Board of Vocational Education and Rehabilitation, Department of Public Instruction, Springfield, Illinois.
Publications: Pooley, Richard C. Delinquency intervention in the high school. A study conducted by the Center for the Study of Crime, Delinquency, and Corrections, Southern Illinois University, Carbondale, Illinois, August 1969.

27-KP-1 THE JUVENILE OFFENDER AND THE LAW

Investigator(s): Elyce Zenoff Ferster, L.L.B., Professor of Law; and Thomas F. Courtless, Ph.D., Associate Professor of Law and Sociology, Department of Sociology and National Law Center, George Washington University, 720 20th Street, N. W., Washington, D.C. 20006.
Purpose: To describe the sociolegal context of juvenile justice systems.
Subjects: 350 formally and informally treated juveniles, ages 9 to 18, randomly selected.
Methods: In the first phase of the study juvenile court statutes, case law, and statistical data from the 50 states and the District of Columbia will be collected, tabulated, and analyzed. The second phase of the study will consist of a detailed descriptive analysis of the juvenile justice system in a suburban Maryland county. The study will focus on the components and operation of the juvenile justice system to determine several factors, including (1) the decision making criteria employed at various levels in the system; e.g., police and court, (2) characteristics of juveniles moving in and out of the system at various levels, and (3) the dispositional process invoked in cases that reach the adjudication stage of the system.
Duration: June 1968-May 1971.

27-KQ-1 THE EFFECT OF SOCIAL SERVICES ON RECIDIVISM RATES OF JUVENILES

Investigator(s): Alan R. Gruber, D.S.W., Director of Research; and Joy Rabinowitz, M.S.W., Director, Project Juvenile, Boston Children's Service Association, 3 Walnut Street, Boston, Massachusetts 02108.
Purpose: To determine the differences between two groups of delinquents who appeared in juvenile court, and to ascertain if social services and treatment recommended by the court affected their rate of return to the court.

Subjects: 50 delinquent boys and girls, ages 7 to 17, who have appeared in Boston Juvenile Court. Two groups will be constituted; one group of delinquents who were referred for services, the other group of delinquents who were not referred.
Methods: Descriptive data will be collected from the records of the Boston Children's Service Association. Families of the youth and court personnel will be interviewed.
Duration: September 1970-July 1971.
Cooperating group(s): Boston University School of Social Work.

27-KQ-2 SAN DIEGO COUNTY JUVENILE NARCOTICS PROJECT

Investigator(s): Robert E. Haney, A.B., Deputy Probation Officer II, San Diego County Probation Department, 2901 Meadow Lark Drive, San Diego, California 92123.
Purpose: To provide group counseling and other alternatives to Juvenile Court action for minors who are first-time or short-term drug and narcotic abusers.
Subjects: Approximately 800 to 1,000 minors per year, ages 14 to 18, arrested by local law enforcement agencies and referred for court action because of drug or narcotic substance abuse.
Methods: The subjects must be charged with relatively minor offenses, must not have an established pattern of delinquent behavior, and must evidently be guilty of the charged offense. Eligible subjects are randomly selected and assigned to an experimental group or to one of two control groups. Experimental subjects and their parents participate in a 6-week program of weekly sessions that combine informational lectures and group counseling. During counseling the minors interact with parents other than their own and with probation officers who act as group facilitators. Control groups are (1) minors referred to the Juvenile Court, and (2) minors handled informally. All subjects and their parents are tested before and after treatment on measures of personal and social adjustment, attitudes towards drugs, family adjustment, recidivism, and self-reported frequency of drug abuse. Measures will be subjected to correlation or analysis.
Duration: August 1970-July 1973.
Cooperating group(s): California Council on Criminal Justice.

27-KS-1 USE OF LIFE-TERM PRISONERS TO COUNSEL JUVENILE DELINQUENTS

Investigator(s): Ludwig Szymanski, M.D.; and Alice Fleming, M.D., Boston Juvenile Court Clinic and Children's Hospital Medical Center, 300 Longwood Avenue, Roxbury, Massachusetts 02119.
Purpose: To evaluate the reciprocal effects of life-term prisoners counseling delinquent boys.
Subjects: Adjudicated delinquent boys, ages 13 to 16, on probation to Boston Juvenile Court; and life-term prisoners at Norfolk Prison Colony.
Methods: Life-term prisoners and delinquent boys are selected by a psychiatrist to participate in individual counseling sessions at the prison. A psychiatrist supervises the prisoner-counselors.
Findings: Prisoners and boys profit from counseling sessions.
Duration: Fall 1968-not reported.
Cooperating group(s): Boston Juvenile Court; Children's Hospital Medical Center.

THE CHILD IN THE FAMILY

Family Relations

27-LA-1 MOTHER-CHILD RESOURCE EXCHANGES AND THEIR CONCOMITANTS

Investigator(s): Richard Longabaugh, Ed.D., Chief, Social Science Department, McLean Hospital, and Associate in Social Psychology, Harvard Medical School, Cambridge, Massachusetts 02138.
Purpose: To describe mother-child interpersonal interactions; to determine sequential constraint in the flow of these interactions; and to determine whether father absence is a concomitant of variability in mother-child interaction.
Subjects: 50 lower class Negro mothers, each with one of her children, ages 5 to 12; 28 boys and 22 girls.
Methods: Mother-child interactions in a waiting room situation were observed, recorded, and categorized. Sequence analyses were carried out by using multivariate uncertainty statistics to determine constraint in the interactions. Findings were related to father presence or absence.
Findings: Mother-child interactions are associated with boys' identification. Mother-child interaction is itself associated with father absence. There is some constraint in the interaction of a mother and her child in their acceptances and rejections of one another's initiations.
Duration: Completed.
Cooperating group(s): Harvard University.

27-LA-2 AN ECOLOGICAL STUDY OF 3-YEAR-OLDS AT HOME

Investigator(s): Phil Schoggen, Ph.D., Chairman, Department of Psychology; and Maxine Schoggen, A.B., Research Associate, Demonstration and Research Center for Early Education, George Peabody College, Nashville, Tennessee 37203.
Purpose: To gather and analyze specimen records of young children in three population subgroups to obtain information about their home experiences.
Subjects: 24 boys and girls, 3 years old, equally distributed among low income urban, low income rural, and middle income urban families.
Methods: Specimen records (narrative descriptions) were made of the children in free play at home and in meal situations at home. The records delineated the purposeful behavior of others in the environment towards the child. The 8,899 behavior units taken from the records were coded according to a system of categories developed for an earlier study. A data processing procedure was devised to provide a more efficient system for data retrieval. Descriptive statistical procedures have been used.

Duration: September 1966-December 1971.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-LA-3 INTERRELATIONS AND CORRELATES OF ATTACHMENT BEHAVIOR IN HUMAN INFANTS

Investigator(s): Willard W. Hartup, Ed.D., Professor, Institute of Child Development, University of Minnesota, Minneapolis, Minnesota 55455.
Purpose: To chart developmentally the patterns of infant social behavior directed towards the mother, and to examine the relation of attachment behaviors to cognitive and other variables.
Subjects: 150 normal infants.
Methods: The research design involves both cross-sectional and longitudinal analyses. Reliable observation techniques have been developed to measure infant behaviors; e.g., looking at, vocalizing to, touching, staying close to mother, and crying. Observations are made when the baby is in a low stress, free play situation and also when he is separated from his mother. Some observations yield a measure of the infant's preference for mother as opposed to his preference for strangers. Other measures are based on standardized procedures to assess object permanence in infants.
Duration: January 1969-not reported.
Cooperating group(s): National Institute of Child Health and Human Development, Public Health Service, U. S. Department of Health, Education, and Welfare; University of Minnesota Graduate School; Social Science Research Council; Netherlands Organization for the Advancement of Pure Research.

27-LA-4 COMMUNICATION IN THE FAMILY

Investigator(s): Reed H. Bradford, Ph.D., Professor of Sociology; and Harold H. Anderson, M.Sc., Department of Sociology, Brigham Young University, Provo, Utah 84601.
Purpose: To discover factors that permit positive and effective communication among family members.
Subjects: University students, ages 17 to 22.
Methods: Subjects completed questionnaires and were interviewed. Results were analyzed statistically.
Duration: September 1969-not reported.
Cooperating group(s): Brigham Young University.

27-LA-5 PARENTAL POWER TYPES AND INFLUENCES ON ADOLESCENTS

Investigator(s): Thomas E. Smith, Assistant Professor of Sociology; Peter J. Burke, Assistant Professor of Sociology, Department of Sociology; and Naim C. Gupta, Assistant Professor of

Psychology and Research Design Consultant, Department of Psychology, Ball State University, Muncie, Indiana 47306.
Purpose: To describe direct, contemporary parental influences upon adolescents.
Subjects: High school and college students.
Methods: A study of parental power based on a comprehensive, coherent framework of general social power will be conducted. Questionnaires will be used to collect data on sociodemographic characteristics, including age and sex. A number of variables will be measured, including several types of paternal and maternal power and the student's estimates of his parents' influence on him. Selected college students will be interviewed in regard to specific attempts made by various sources to influence adolescents in different areas of life.
Duration: August 1969-August 1971.
Cooperating group(s): Public Health Service, U. S. Department of Health, Education, and Welfare.

27-LC-1 PROBLEMS OF FATHERLESS FAMILIES

Investigator(s): Douglas Holmes, Ph.D., Center for Community Research, 33 West 60th Street, New York, New York 10023.
Purpose: To study the effects of having only one parent on children in father-absent families, and to develop a handbook for practitioners based on this information.
Subjects: 360 single-parent families and 120 intact families, equally divided as to socioeconomic status, race, age, reason for paternal absence, and sex of the child.
Methods: The subjects will be selected by quota sampling. Data collection instruments will include an interview schedule, a behavior checklist, and a set of projective stimuli for the children. Data collected from single-parent families and intact families will be compared and statistically analyzed.
Duration: October 1970-September 1972.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-LD-1 FAMILY AND FERTILITY IN THE PHILIPPINES

Investigator(s): William T. Liu, Ph.D., Director, Social Science Training Laboratory, and Professor of Sociology; and Arthur J. Rubel, Ph.D., Professor of Anthropology, University of Notre Dame, Notre Dame, Indiana 46556.
Purpose: To study the sociocultural environment of a high fertility population in Cebu, Philippines, and to investigate the socialization of sexuality and sex roles.
Subjects: Members of 3,000 households in urban and rural areas.
Methods: Survey methods and anthropological interviews are used.
Duration: October 1967-June 1970.
Cooperating group(s): San Carlos University and Cebu Institute of Medicine, Cebu City, Philippines; Philippine National Economic Council; Agency for International Development, U. S. Department of State.

27-LD-2 A CROSS-CULTURAL STUDY OF MOTHER-CHILD COMMUNICATION

Investigator(s): Esther R. Greenglass, Ph.D., Assistant Professor of Psychology, York University, Downsview, Ontario, Canada.

Purpose: To examine the relationship between ethnicity, age, and sex of the child and maternal communication with the child; and to examine the relationship between the child's communication with the mother and ethnicity, age, and sex of the child.

Subjects: 132 mother-child pairs: 33 Italian-born, Canadian resident mothers and their 13- and 14-year-olds; 32 Italian-born, Canadian resident mothers and their 9- and 10-year-olds; 37 Canadian-born mothers and their 13- and 14-year-olds; and 30 Canadian-born mothers and their 9- and 10-year-olds.

Methods: Each mother-child pair was given three tasks that required the pair to reach consensus through discussion. Discussions were tape recorded. Data for analysis consisted of frequency of mother's and child's utterances within specified verbal categories, including justifications and demands as outlined in the manual, *Verbal Exchange Analysis* (Danziger and Greenglass, 1970).

Findings: Italian mothers used more demands, both direct imperatives and requests for information or evaluation, when they addressed their children than Canadian mothers. Canadian mothers used more justifications, or concrete appeals, with their children than Italian mothers. Among preadolescents, Italian girls made more frequent use of requests for orientation than Canadian girls. Canadian preadolescents used more justifications than Italian children.

Duration: August 1968-August 1971.

Cooperating group(s): Canada Council.

27-LD-3 COST OF RAISING A CHILD

Investigator(s): Jean L. Pennock, M.A., Chief, Family Economics Branch, Consumer and Food Economics Research Division, Agricultural Research Service, U. S. Department of Agriculture, 338 Federal Center Building, Hyattsville, Maryland 20782.

Purpose: To determine childrearing costs at selected economic levels by region and urbanization.

Subjects: Cross-section of United States families that consist of a husband, a wife, and one to five children.

Methods: Data used are from the 1960-1961 Survey of Consumer Expenditures conducted by the U. S. Bureau of Labor Statistics and the U.S. Department of Agriculture. Estimates of cost are derived by regression analysis. Levels selected are those at which the family food expenditures equal the cost of the U.S. Department of Agriculture food plans.

Findings: Childrearing costs for the first 18 years of an average child's life, at the low cost food plan level, range from $19,500 to $25,000. Childrearing costs are being computed at other food plan levels and according to number of children in the family.

Duration: 1969-1971.

Publications: *Family Economics Review*, March and December 1970. (A publication of the Consumer and Food Economics Research Division, U. S. Department of Agriculture.)

27-LE-1 **A STUDY OF THE EFFECTS ON THE FAMILY DUE TO EMPLOYMENT OF THE WELFARE MOTHER**

Investigator(s): H. Feldman, Child Development and Family Relations, Graduate School, Cornell University, 101 Sage Graduate Center , Ithaca, New York 14850.
Purpose: To investigate the effects of employment of the welfare mother on the care of her children, use of community resources, and changes in self-perception; and to determine what factors may strengthen or weaken families when the mother works.
Subjects: 1,200 urban, upstate New York welfare families including long-term unemployed, employed, and intermittently employed welfare women.
Methods: Two interviews will be conducted 6 months apart. Information will be collected on (1) personal characteristics including age, education, use of community resources, attitudes towards education, work history, and hours of work; (2) household management and consumer economics variables, including care and maintenance of the home, food preparation, nutrition, home management, clothing care, purchasing practices, knowledge of consumer resources, household budgeting, and attitudes about housekeeping; and (3) human development aspects including maternal attitudes towards children, child care arrangements, childrearing practices, conflicts between mother and child, mothers' self-concepts, and children's attitudes towards work.
Duration: July 1969-June 1970.
Cooperating group(s): U. S. Department of Labor.

27-LF-1 **COALITION FORMATION IN FAMILY INTERACTION**

Investigator(s): Anthony Schuham, Ph.D., Assistant Professor of Child Psychology, Department of Pediatrics, University of Oklahoma Medical Center, 800 13th Street N.E., Oklahoma City, Oklahoma 73104.
Purpose: To test hypotheses concerning differential interaction processes inferred to be ongoing in disturbed and normal families. The major hypothesis is that there is a weakness in the parental-child coalition relationship in disturbed families.
Subjects: 24 disturbed and 24 normal families (each with father, mother, and their 8- to 12-year-old).
Methods: The disturbed families are divided into three groups consisting of children diagnosed as borderline psychotic, neurotic, or having personality disorders; further divisions are made on the basis of the child's age and sex and the family's socioeconomic class. The family members independently complete a questionnaire that presents a series of family problem situations. They rank suggested solutions to each problem. Then the family members discuss among themselves their disagreement on answers to four questions. The items for discussion are selected on the basis of the following coalition conditions: (1) mother-father agree, child disagrees; (2) father-child agree, mother disagrees; (3) mother-child agree, father disagrees; and (4) all disagree. The family discussions are videotaped for later process and analysis.
Duration: November 1969-October 1971.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Childrearing

27-MA-1 A MEASUREMENT OF PERCEPTUAL ACCURACY AND CONCEPT FORMATION IN MOTHERS OF OBESE CHILDREN

Investigator(s): Jerry B. Saffer, Ph.D., Assistant Professor of Psychiatry (Psychology) and Chief Clinical Child Psychologist, University of Virginia Medical Center, University of Virginia, Charlottesville, Virginia 22901.
Purpose: To investigate the childrearing attitudes of mothers of obese children, and to determine if they are more dependent on the environment for their self-definition (as measured by the accuracy of their judgment of elapsed time) than are mothers of normal weight children.
Subjects: 30 mothers of obese children; 30 control mothers. Subjects were contacted through the outpatient pediatric clinics of the University of Virginia Hospital.
Methods: Each mother will see a compilation of 30-second sequences of videotaped activities arranged in the following order: child eating, child playing, child sleeping, child laughing, child crying, and child being disciplined. During the 1-minute of blank tape placed between each of these sequences, the mothers will be asked to estimate the length of time of the previous sequence. At the end of all the sequences, semantic differentials will be administered to the mothers, and the six sequences will be used as the concepts in the semantic differentials. A parent attitude rating inventory will be administered to both groups.
Duration: January 1971-September 1971.
Cooperating group(s): Pediatrics Department, University of Virginia.

27-MB-1 NEONATE-MOTHER INTERACTION DURING BREAST FEEDING.

Investigator(s): Evelyn B. Thoman, Ph.D., Research Fellow; P. Herbert Leiderman, M.D., Professor, Department of Psychiatry, Stanford School of Medicine; and Joan P. Olson, M.A., Graduate Student, Stanford University, Stanford, California 94305.
Purpose: To depict quantitatively the characteristics of mother-neonate interaction during breast feeding and to compare groups of primiparous and multiparous mothers.
Subjects: 20 primiparous and 20 multiparous mothers and their infants (10 males, 10 females in each group). Mother-infant pairs were included only if the infant were full-term with an Apgar rating of 8 or more, and if the prenatal period and the delivery were free of complications.
Methods: Mothers were observed while feeding their 48-hours-old infants. A modified time sampling procedure was developed, and reliabilities were determined to assess the amount of time devoted to breast feeding, water feeding, and nonfeeding. Subcategories indicated (1) if the infant was attached to the nipple, (2) if the infant sucked, (3) if the mother stimulated the infant with the nipple, or stimulated his cheek or other parts of his body, and (4) if the mother talked to or smiled at the infant.
Findings: The primiparous mother-infant pairs used more time for each of the major categories of activities than did the multiparous mother-infant pairs. The primiparous mothers spent more time getting the infant attached to the breast. Their infants sucked less while attached to the nipple,

despite the greater amount of stimulation they provided. Primiparous mothers nursed their sons for longer periods of time; however, they talked more and smiled more at their daughters. There was a significant correlation between the amount of talking to the infant at the feeding observation and the subsequent age at which the infant was weaned.
Duration: April 1968-May 1970.
Cooperating group(s): Grant Foundation; Premature Infant Research Center, Stanford University Medical Center; National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-MB-2 PATERNAL CHILDREARING PRACTICES AND COGNITIVE DEVELOPMENT IN PRESCHOOL BOYS

Investigator(s): Norma Radin, Ph.D., Assistant Professor, School of Social Work, University of Michigan, Ann Arbor, Michigan 48104.
Purpose: To determine the relationship between specific paternal childrearing practices and the cognitive development of young boys.
Subjects: 20 white lower class and 20 white middle class 4-year-old boys; and their fathers.
Methods: The fathers are interviewed at home while their sons are present. The interviews are tape recorded and various categories of paternal behavior are scored. The children are tested on the Stanford Binet and the Peabody Picture Vocabulary Tests, and their IQ scores are correlated with the childrearing practices of their fathers. The middle class and lower class populations will be analyzed separately, will be compared, and will be analyzed together.
Duration: 1970-1971.

27-MB-3 CHILDREARING PRACTICES ASSOCIATED WITH THE DEVELOPMENT OF COGNITIVE SKILLS OF CHILDREN IN LOW SOCIOECONOMIC AREAS

Investigator(s): Raymond W. Swan, D.S.W., Associate Professor; and Helen Stavros, M.S.W., Research Associate, School of Social Work, Tulane University, New Orleans, Louisiana 70118.
Purpose: To identify disadvantaged children with exceptional cognitive abilities, and to observe parent-child interaction in the home.
Subjects: 40 Negro and Caucasian boys and girls, ages 4 and 5, enrolled in preschool programs in disadvantaged areas.
Methods: The children will be divided into groups by their teachers on the basis of four behavioral descriptions that reflect distinct conceptual styles of children. (One descriptive style is representative of children with a high degree of cognitive ability.) The children in each group will be ranked according to how closely their behavior matches the group description. The study will focus on parent-child interaction in the home and will examine the following behaviors: (1) alternatives and consequences, (2) provision of information, (3) appreciation of differences, and (4) descanted communication.
Duration: October 1970-April 1971.

27-MB-4 **ASSESSMENT OF CHILDREARING ENVIRONMENTS: AN ECOLOGICAL APPROACH**

Investigator(s): Elizabeth Prescott, M.A., Director of Research; and Elizabeth Jones, Ph.D., Director of Graduate Studies, Pacific Oaks College, 714 West California Boulevard, Pasadena, California 91105.
Purpose: To develop a classificatory scheme to evaluate and compare environmental variables in group care and home care settings.
Subjects: 80 boys and girls, ages 2 to 5, in day care centers. Children will be classified by their teachers as difficult and not thriving or easy and thriving.
Methods: Half of the subjects will be selected from day care centers using a teacher-directed format; half from a day care center using a free-choice format. A precoded observation schedule has been developed to record episodes within an activity segment framework. Data will be analyzed to examine differences between environments in the (1) range of behavior, (2) the origin of activity segments, (3) duration of focus, (4) complexity of behavior, and (5) mode of behavior. Observational data will be compared with children's characteristics as perceived by teachers.
Findings: Program structure and characteristics of physical space appear to regulate certain aspects of the child's experience.
Duration: 1969-1972.
Cooperating group(s): Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-MB-5 **RELATIONSHIPS BETWEEN 2-YEAR-OLD CHILD BEHAVIOR PATTERNS, CHILDREARING PATTERNS, AND NURSERY SCHOOL FUNCTIONING**

Investigator(s): Robert W. Chamberlin, M.D., Assistant Professor, Department of Pediatrics, University of Rochester Medical School, 260 Crittenden Boulevard, Rochester, New York 14620.
Purpose: To identify parent-child interaction patterns at age 2 that predict nursery school and kindergarten behavior patterns at ages 4 and 5.
Subjects: 200 middle class 2-year-olds who receive health supervision from two private pediatric group practices.
Methods: Interviews with mothers and observations of mother-child interaction at home identify early child behavior patterns and childrearing patterns. Teacher checklists and observations of the child in school identify nursery school and kingergarten behavior patterns.
Duration: June 1968-June 1972.
Cooperating group(s): Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: *Clinical Pediatrics*, 1967, 6, 469-479; *Genetic Psychology Monographs*, 1969, 80, 129-148.

27-MB-6 **VERBAL STRATEGIES USED BY MOTHERS WITH THEIR YOUNG (LANGUAGE LEARNING) CHILDREN VERSUS THEIR OLDER (LANGUAGE COMPETENT) CHILDREN**

Investigator(s): Patricia Broen, M.A., Research and Development Center in the Education of Handicapped Children; and Gerald M. Siegel, Ph.D., Professor of Communicative Disorders, Speech

and Hearing Clinic, Shevlin Hall, University of Minnesota, Minneapolis, Minnesota 55455.
Purpose: To study the kinds of modifications of verbal strategy a mother uses when talking to a child who is acquiring language skills.
Subjects: 10 triads. Each triad consists of a mother and two of her children, ages 1 to 2 and 4 to 5.
Methods: The mother and each child meet for a number of sessions during which their verbal behavior is recorded and transcribed. Analyses are made of the verbal patterns of the children and the mother, particularly of the types of tutorial or didactic strategies the mother uses when she speaks with the younger child. Investigators expect to draw inferences that concern these verbal interactions and the child's development of language skills.
Duration: September 1970-August 1971.

27-MB-7 MATERNAL STIMULATION AND INFANT COGNITIVE DEVELOPMENT

Investigator(s): D. Wells Goodrich, M.D., Professor of Psychiatry, Division of Psychiatry, Montefiore Hospital, 111 East 210th Street, Bronx, New York 10467; Herbert Nechin, Ph.D., Professor of Psychology; Mary Engel, Ph.D., Associate Professor of Psychology; and William King, Assistant Professor of Psychology, City University of New York, New York, New York 10031.
Purpose: To explore mother-infant home behavior patterns during late infancy; to discover which behavior patterns correlate with adequate infant cognitive development during that period; and to test predictions about specific maternal attributes believed to facilitate or inhibit infants' cognitive development.
Subjects: First-born black, male infants living in Central Harlem, and their mothers. About half of the families are on welfare; the others range from upper-lower to middle-middle class.
Methods: During the infants' period of early verbal learning and motor competence, subjects are studied by (1) time sampling of mother-child interactions in the home at 14, 18, and 22 months; (2) infant intelligence assessments at 14, 18, and 22 months by the Bayley Scales and the Hunt-Uzgiris Scales; and (3) maternal inverviews at 14 months, studying maternal personality, psychological mindedness, time-sense, and childrearing beliefs.
Duration: September 1969-December 1971.
Cooperating group(s): Montefiore Hospital; National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-MB-8 FAMILY ORGANIZATION IN RELATION TO HEALTH BEHAVIOR

Investigator(s): Lois Pratt, Ph.D., Professor of Sociology, Jersey City State College, Jersey City, New Jersey 07305.
Purpose: To determine if intrafamily relationships and patterns of family organization are related to the personal health practices, use of professional health services, and the health status of family members.
Subjects: 510 representative northern New Jersey families that consist of mother, father, and at least one child, age 9 to 13.
Methods: Professional interviewers conducted separate, structured interviews with the child, the

mother, and the father. (In 275 families all three principals were interviewed; in 235 families only the mother and child were interviewed.) A variety of indices were constructed to represent the independent and dependent variables. Several statistical techniques, including multiple regression analysis, were used.

Findings: A developmental pattern of childrearing was associated with markedly better health care practices than a disciplinary pattern of childrearing. The extension of independence to children was more closely associated with good health practices than was a high level of parent-child companionship.

Duration: January 1969-June 1972.

Cooperating group(s): National Center for Health Services Research and Development, Public Health Service, U. S. Department of Health, Education, and Welfare.

SOCIOECONOMIC AND CULTURAL FACTORS

27-NA-1 THE IMAGE OF THE CHILD IN CONTEMPORARY ITALIAN SOCIETY

Investigator(s): Franco Crespi, Professor of Sociology, Universita Internazionole degli Studi Socioli, via le Pola 12, Roma, Italy.
Purpose: To analyze the image of the child held by adults of various ages and classes.
Subjects: Approximately 1,000 persons, ages 21 to 30 and 45 to 60, of various socioeconomic classes.
Methods: The content of literature on children will be analyzed, and the research sample will be surveyed by questionnaires.
Duration: 1971-1973.

27-NB-1 MEMORY AND LEARNING IN PRESCHOOL CHILDREN DIFFERING IN SES AND RACE

Investigator(s): Norman R. Ellis, Ph.D., Professor of Psychology, University of Alabama, P. O. Box 6223, University, Alabama 35486.
Purpose: To determine and compare fundamental abilities in children of different socioeconomic status and race.
Subjects: 120 boys and girls, ages 5 to 6; 60 Negro Head Start children, and 60 Caucasian middle class kindergarten children.
Methods: The children were compared on (1) the Peabody Picture Vocabulary Test, (2) the Cattell Culture Fair Intelligence Test, (3) digit span, (4) a probe-type short-term memory test, and (5) a series of seven learning potential tests ranging from simple two-choice discrimination problems to complex oddity reversal problems.
Findings: Scores of both groups of children were substantially different on the two intelligence tests. The Cattell scores were higher in both groups. There were no significant differences between the groups of children on tests designed to tap the fundamental differences of learning and memory.
Duration: Summer 1968-summer 1970.
Cooperating group(s): University of Alabama.

27-NB-2 VALUE CONFLICT IN THE SCHOOL SETTING

Investigator(s): Richard L. Gorsuch, Ph.D., Kennedy Associate Professor of Psychology; and J. R. Newbrough, Ph.D., Professor of Psychology, George Peabody College for Teachers, Nashville, Tennessee 37203.

Purpose: To examine the importance that children from different socioeconomic and racial groups ascribe to particular school related values, and to examine the influence of children's values on the teacher-pupil relationship and on academic success.
Subjects: 428 Negro and Caucasian children, grades 4 and 5, from middle and lower class neighborhoods in Nashville; and their 16 teachers.
Methods: Data were collected at the beginning and end of the first semester from teachers' daily reports and from questionnaires. Questionnaires administered to the children secured information concerning values, peer group, personality, and intelligence. Questionnaires administered to teachers included measures of values and various children's rating scales. Using the personality measures as mediators an analysis will be made of the relationship of value differences among teachers, students, and peers to personal, behavioral, and educational conflicts. Information gathered from teachers will be used to study labeling and the perception of deviancy.
Findings: Race, sex, and socioeconomic differences have been found on the value measures. Teacher-perceived behavior and personality problems have been related to value differences. Fourth and fifth grade children make little distinction among the values of honesty, good manners, and affiliation; but respond globally to the entire set in a somewhat positive way.
Duration: June 1969-August 1971.
Cooperating group(s): Metro School System; The Kennedy Center and The Center for Community Study, George Peabody College for Teachers; Office of Education, U. S. Department of Health, Education, and Welfare.

27-NF-1 POLICE–JUVENILE ATTITUDE PROJECT

Investigator(s): Robert Portune, Ed.D., Acting Coordinator of Academic Programs, College of Education and Home Economics, University of Cincinnati, Cincinnati, Ohio 45221; and Jack E. Corle, Ed.D., Director of Counseling, Ohio Northern University, Ada, Ohio 45810.
Purpose: To modify the attitudes of young adolescents towards policemen.
Subjects: Approximately 15,000 Negro and Caucasian boys and girls, ages 12 to 16.
Methods: The procedures included (1) development of an attitude-towards-police scale, (2) design and development of junior high school curriculum units to change early adolescent attitudes towards policemen, (3) experimental use of curriculum units in grades 7, 8, and 9, and (4) pre- and postscaling of experimental and control subjects. Curriculum units will be adopted on a continuing basis in Cincinnati, Ohio; Tampa, Florida; Rochester, New York; Fort Smith, Arkansas; and individual schools across the country.
Findings: Experimental subjects show statistically significant improvement in attitude. Control subjects show no change or show a statistically significant unfavorable change.
Duration: April 1967-continuing.
Cooperating group(s): Cincinnati Police Department; Cincinnati Public Schools; Cincinnati Archdiocese Schools; Hamilton County Schools; Tampa, Florida Police Department; Hillsboro County Florida Schools; Rochester, New York Police Department, Rochester Public and Parochial Schools.
Publications: Portune, Robert. *Changing Adolescent Attitudes Toward Police.* Cincinnati, Ohio: The W. H. Anderson Co., 1971.

27-NF-2 RACIAL DISCRIMINATION IN CHILDREN

Investigator(s): Phyllis A. Katz, Ph.D., Associate Professor, Graduate Center, City University of New York, 33 West 42nd Street, New York, New York 10036.
Purpose: To investigate developmental, linguistic, and perceptual aspects of children's ethnic attitudes.
Subjects: Black and white urban children in grades preschool through 6.
Methods: The project involves a series of interrelated studies concerned with (1) attitude assessment (employing both direct and indirect measures), (2) discrimination learning parameters and doll preference tasks in young children, (3) perceptual correlates of attitudes in older children, and (4) an investigation of potential attitude modification techniques.
Duration: December 1968-June 1971.
Publications: Paper presented at the American Psychological Association Convention, Miami, September 1970.

27-NG-1 CHILDHOOD SOCIALIZATION AMONG THE SANEMA INDIANS OF VENEZUELA

Investigator(s): Gregory P. Stone, Ph.D., Professor of Sociology, University of Minnesota, Minneapolis, Minnesota 55455.
Purpose: To compare the processes of socialization of children in an isolated jungle village with the processes of socialization in North American communities.
Subjects: All children, ages infancy to 12 years, in a Venezuelan village of approximately 80 people.
Methods: Carefully timed observations, informal interviews, and films of children playing in the jungle community were made and will be analyzed.
Duration: July 1969-indefinite.
Cooperating group(s): Office of International Programs, College of Liberal Arts, and Graduate School, University of Minnesota.

27-NG-2 INTERNATIONAL STUDY OF EARLY CHILD CARE

Investigator(s): Urie Bronfenbrenner, Ph.D., Professor of Psychology and of Human Development and Family Studies, Cornell University, Ithaca, New York 14850; Julius B. Richmond, M.D., Head, The Judge Baker Guidance Center, Boston, Massachusetts; Halbert B. Robinson, Professor of Psychology, Director of the Developmental Psychology Laboratory, University of Washington, Seattle, Washington 98105; Martin Wolins, Professor of Social Welfare, University of California, Berkeley, California 94720; and investigators from other participating countries.
Purpose: To describe and analyze early child care systems in 11 countries.
Methods: Published and unpublished data will be gathered on early child care systems in Cuba, France, Hungary, India, Israel, Poland, Sweden, Switzerland, United Kingdom, United States, and Russia. Study design is descriptive.
Duration: 1968-1971.
Cooperating group(s): Carnegie Corporation; International Study Group for Early Child Care.

EDUCATIONAL FACTORS AND SERVICES

General Education

27-OA-1 A LONGITUDINAL STUDY OF PUPIL CHANGE IN GRADED AND NONGRADED CLASSROOMS

Investigator(s): N. D. Bowers and F. X. Vogel, Department of Education, Northwestern University, 633 Clark, Evanston, Illinois 60201.
Purpose: To assess the changes over time of the behavior of pupils in a multi-age nongraded school and of the behavior of pupils in traditional graded schools, and to make comparisons of these changes.
Subjects: 750 elementary school pupils.
Methods: A multivariate analysis will be made of the true gain scores of pupils utilizing attitude, achievement, and concept maturity measures. Comparisons among different types of school organizations and among different groups of teachers will be studied.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare; State of Illinois Program Development for Gifted Children.

27-OD-1 AN EVALUATION OF SEX EDUCATION

Investigator(s): James E. Elias, M.S., Associate Sociologist, Institute for Sex Research, Indiana University, 416 Morrison, Bloomington, Indiana 47401.
Purpose: To evaluate the effects of a formal family life and sex education program on high school students.
Subjects: 174 boys and 231 girls, ages 15 to 19, randomly selected from a midwestern suburban high school.
Methods: The project has a pre- and posttest, control group design. Questionnaires were used to collect data on actual sex knowledge, attitudes towards sexual behavior and towards self, and demographic information. Information about the students' actual behavior was collected during interviews. Data were computer analyzed.
Duration: November 1968-January 1971.

27-OE-1 **A PILOT STUDY FOR THE DEVELOPMENT OF MUSIC DISCRIMINATION TESTS FOR ELEMENTARY SCHOOL CHILDREN**

Investigator(s): N. H. Long and W. Christ, School of Education, Indiana University, Bloomington, Indiana 47401.
Purpose: To construct a test or a battery of tests that will measure (1) children's music discrimination abilities; (2) their understanding of basic concepts including rhythm, melody, and harmony; and (3) their ability to apply these concepts while listening to music.
Subjects: School children, ages 12 and under.
Methods: The procedures involved in construction of the test include (1) restudy of previous research on the development of music concepts in children, (2) the design of a test format suitable for elementary children, (3) collection of a large number of items chosen from Western concert music, (4) composition of one or more deformations in the first phrase of each chosen item, (5) recording the music items and deformations, (6) judgment of the artistic quality and content validity of the items by juries of experts, (7) re-recording defective items, (8) assembling experimental forms of a test using items approved by the experts, (9) administration of the experimental forms to children, (10) correlation of test scores with other data to determine validity, (11) item analysis of the experimental forms, and (12) building final test forms from discriminating items.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-OE-2 **PERCEPTUAL SHIFT TRAINING FOR TEACHERS OF DISADVANTAGED CHILDREN**

Investigator(s): Douglas Holmes, Director, Center for Community Research, Associated YM-YWCAs of Greater New York, 33 West 60th Street, New York, New York 10023.
Purpose: To equip teachers of disadvantaged children to interpret their students' intellectual potentials.
Subjects: 30 second-year student teachers at New York City Community College.
Methods: Instructional tapes were prepared that demonstrated the behavioral factors most often correlated with intelligence among disadvantaged children. One group of student teachers will participate in perceptual reorientation seminars, and a nonparticipating group will serve as a control in order to evaluate the program's impact.
Findings: Preliminary findings show that the technique is a useful one.
Duration: November 1969-March 1971.
Cooperating group(s): Office of Economic Opportunity.

27-OF-1 **THE EFFECT OF EXPECTANCY REINFORCEMENT ON ARITHMETIC ACHIEVEMENT, SELF-CONCEPT, AND PEER-GROUP STATUS OF ELEMENTARY SCHOOL CHILDREN**

Investigator(s): F. William Gosciewski, Ph.D., Assistant Professor, Department of Special Education and School Psychology, Edinboro State College, Edinboro, Pennsylvania 16412.
Purpose: To investigate whether a specific procedure of expectancy reinforcement applied by parents and/or teachers will improve arithmetic achievement, self-concept, and peer-group status

among fourth grade boys.
Subjects: 96 fourth grade boys randomly selected from a group who wanted to participate in the study, and who had parental approval to do so.
Methods: Four treatment and four control subjects were assigned to each of 12 research classes. Four research classes were randomly assigned to each of three treatment-control conditions: (1) PTR and PTR-C (subjects who received parental and teacher reinforcement, and controls), (2) PR and PR-C (subjects who received parental reinforcement, and controls), and (3) TR and TR-C (subjects who received teacher reinforcement, and controls). PTR and PR parents and PTR and TR teachers were instructed to reinforce their children's and students' performance in arithmetic in excess of what was actually achieved. All reinforcements were oral (parents) or oral and written (teachers). Pre- and posttreatment measures were taken on the three dependent variables. ANCOVA (co-variate: IQ) was employed in analysis.
Findings: No significant difference was found among any of the groups on any of the dependent variables, which suggests in this instance that conscious communication of a false expectancy may be counter-influenced or nullified by the actual expectancy held by the communicator.
Duration: September 1969-March 1970.

27-OF-2 **CHRONOLOGICAL ENTRANCE AGE AS IT RELATES TO PRIMARY SCHOOL ACHIEVEMENT AND PERSONAL AND SOCIAL DEVELOPMENT OF THE STUDENTS**

Investigator(s): Clive C. Beattie, Ed.D., University of Minnesota, 2227 Hillsdale Avenue, St. Paul, Minnesota 55119.
Purpose: To determine if there were significant differences among entrance groups on measures of academic achievement in grades 1, 2, and 3; in academic achievement from grades 1 to 2, and from grades 2 to 3; and in personal and social adjustment in grade 3.
Subjects: 387 third graders who attended the same school from kindergarten through grade 3, divided into four groups according to their chronological entrance age.
Methods: The Stanford Achievement Tests, Otis-Lennon Mental Abilities Tests, and California Test of Personality were administered to the subjects. Analyses of variance and covariance were used to statistically analyze the null hypothesis. If the hypothesis were rejected, Duncan's Multiple Range Test was used to determine whether the difference between any two ranked means was significant.
Findings: Older school entrants were significantly superior to younger entrants in academic achievement at grades 1, 2, and 3. The achievement of the younger entrants as they progressed from grades 1 to 2 and from grades 2 to 3 was not significantly different from the older entrants. The younger entrants were significantly superior to the older entrants in personal and social development at the third grade level.
Duration: October 1969-July 1970.

27-OF-3 **PATTERNS OF ACHIEVEMENT RELATED CLASSROOM BEHAVIOR OF JUNIOR-SENIOR HIGH SCHOOL STUDENTS: NORMATIVE DATA AND COMPARISON OF NORMAL AND DELINQUENT SAMPLES**

Investigator(s): Marshall Swift, Ph.D., Associate Director, School Mental Health Studies, Hahnemann Medical College and Hospital, and Consultant, Sleighton Farm School for Girls; and George

Spivack, Ph.D., Director, Division of Research and Evaluation, Department of Mental Health Sciences, Hahnemann Medical College and Hospital, 314 North Broad Street, Philadelphia, Pennsylvania 19102.

Purpose: To describe profile or syndrome types of achievement related classroom behavior patterns, and to provide norms for urban high school students.

Subjects: 500 randomly selected boys and girls, grades 7 to 12, who attend eight urban public junior or senior high schools in Philadelphia; and a matched control sample of 120 delinquents from a nearby residential center.

Methods: The subjects were equally distributed through four major subject areas: English, social studies, science, and math. A previously developed behavior rating scale (Swift and Spivack, 1969) was used by teachers to assess classroom behavior of their students. Behavior factors and patterns were related to academic success. Specific pattern or syndrome types were derived with 96 percent interrater agreement.

Findings: The results indicated that 10 patterns or syndrome types account for 99 percent of the achievement related behavior of all students. The patterns are differentially related to academic achievement in the same way for both normal and delinquent samples and for boys and girls. As expected, a greater percentage of delinquents displayed school difficulties. Norms for the urban sample, derived from norms for a suburban sample, are available.

Duration: February 1970-February 1971.

Cooperating group(s): Philadelphia Public Schools; Sleighton Farm School for Girls, Delaware County, Pennsylvania; Hahnemann Medical College and Hospital.

27-OF-4 A LONGITUDINAL STUDY OF ACHIEVEMENT RELATED CLASSROOM BEHAVIOR

Investigator(s): Marshall Swift, Ph.D., Associate Professor, School Mental Health Studies; and George Spivack, Ph.D., Director, Division of Research and Evaluation, Department of Mental Health Sciences, Hahnemann Medical College and Hospital, 314 North Broad Street, Philadelphia, Pennsylvania 19102.

Purpose: To study classroom behavior patterns of elementary school children in order to provide a clearer picture of the predictive nature of early functioning.

Subjects: 600 kindergarten boys and girls who attended 29 urban schools in Philadelphia in November 1968; half of whom were previously enrolled in Head Start programs.

Methods: The classroom behavior of the children, who are from a low socioeconomic area, is repeatedly measured. When available, information regarding achievement, school difficulties, emotional problems, movement, and test scores will be related to early classroom behavior patterns as recorded by teachers who used the Devereux Elementary School Behavior Rating Scale (Spivack and Swift, 1966, 1967). Background information is provided by the schools involved and the Research Section of the Philadelphia School District. The study, now in its third year, will follow the same children for 7 years.

Findings: The initial kindergarten behavioral adjustment of Head Start children, especially boys, is different from peers. Children, leaving public school at the end of kindergarten to enter parochial first grade, differ in behavioral adjustment from peers who remain in the public school.

Duration: 1968-1977.

Cooperating group(s): Philadelphia Public Schools; Hahnemann Medical College and Hospital.

27-OF-5 TEACHER SELF-ESTEEM AND EXPECTATIONS FOR STUDENT ACHIEVEMENT

Investigator(s): Eugene L. Gaier, Ph.D., Professor; and Jeremy D. Finn, Ph.D., Associate Professor, Department of Educational Psychology, State University of New York at Buffalo, Buffalo, New York 14214.

Purpose: To test the hypotheses that (1) teachers with high self-esteem relevant to their instructional abilities will expect pupils to take greater interest in course material and to internalize more course content, and (2) pupils whose teachers hold relatively high expectation levels will consistently achieve greater mastery of the course material.

Subjects: 2,000 fifth grade boys and girls, randomly selected from inner city schools; and their 65 classroom teachers.

Methods: Questionnaires were distributed that concerned teachers' expectations for the overall achievement of their students, course grades, and final grades. Pre- and postadministrations of a series of statements that concern children's self-perceptions will be conducted.

Duration: September 1970-July 1971.

Cooperating group(s): Faculty of Educational Studies, State University of New York at Buffalo.

27-OF-6 A CROSS-CULTURAL STUDY OF ACHIEVEMENT RELATED CLASSROOM BEHAVIOR IN FRANCE AND THE UNITED STATES

Investigator(s): Marshall Swift, Ph.D., Associate Director, School Mental Health Studies, Hahnemann Medical College and Hospital, 314 North Broad Street, Philadelphia, Pennsylvania 19102; and Alain Danset, Laboratoire de Psychologie Genetique (ERA-CNRS), Faculte des Lettres et Sciences Humaines de Paris-Sorbonne.

Purpose: To ascertain the degree of similarity between classroom behavior standards held by American and French elementary school teachers; to determine whether the classroom behavior factors relate to each other in a similar way; and to assess whether these behaviors relate to academic success or failure similarly in the two cultures.

Subjects: 1,325 French and 809 American elementary school boys and girls, ages 5 to 12, kindergarten to grade 6.

Methods: The Devereux Elementary School Behavior Rating Scale was translated into French and used by French teachers to rate the overt behavior of their students in the same manner as their American teacher counterparts rated their children. Behavior factors and profiles were analyzed and compared for both populations. Norms for each were compared.

Findings: The results indicate similar correlations in both cultures between classroom behavior and achievement, and among the dimensions of classroom behavior. Results also suggest that the children may behave in a quite similar way in both cultures during the early school years, but that they are confronted by teachers who differ in what they expect, and who therefore exert different pressures or demands regarding what is acceptable in class.

Duration: June 1969-June 1971.

Cooperating group(s): Division of Research, Department of Mental Health Sciences, Hahnemann Medical College and Hospital; Laboratoire de Psychologie Genetique (ERA-CNRS), Faculte des Lettres et Sciences Humaines de Paris-Sorbonne.

27-OF-7 PRESCHOOL PREDICTORS OF SCHOOL ACHIEVEMENT

Investigator(s): Martin Kohn, Ph.D., Research Psychologist, William Alanson White Institute, 20 West 74th Street, New York, New York 10023.
Purpose: To determine the extent to which elementary school achievement of lower and middle class children can be predicted from preschool intellectual development, social-emotional status, and background-demographic variables.
Subjects: 230 males, age 5, who attend a day care center or kindergarten.
Methods: Measures of social-emotional status, measures of cognitive ability, and background and demographic variables will be obtained for each subject. A factor analysis will be performed on the set of cognitive function variables, excluding the IQ measure, to reduce the number of variables to a small number of broad cognitive factors. A matrix of the correlations of the cognitive factor scores, emotional factor scores, and background variables will be made to provide an overview of the intra- and interrelationships of these variables. The measures of emotional function, socioeconomic status, race, and other background variables will be treated as independent variables to determine their effect on specific cognitive factor scores and the IQ. The cognitive factor scores and the IQ will be treated as both independent and dependent variables. Measures of scholastic achievement and social-emotional status will be obtained for the children at the end of their first year and at the beginning of their second year in elementary school. The three sets of preschool measures will be evaluated relevant to their separate, incremental, and interactive effects in the prediction of academic achievement and social-emotional status of the children in their first year in elementary school.
Duration: June 1969-June 1972.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-OF-8 FAMILY INFLUENCE ON SCHOOL ACHIEVEMENT

Investigator(s): B. Jeanne Mueller, Ph.D., Assistant Professor, School of Social Work, University of Wisconsin at Madison, Madison, Wisconsin 53706.
Purpose: To determine the family attitudes, values, aspirations, and expectations that are associated with high and low achievement of elementary school boys within a single socioeconomic class.
Subjects: 30 working class families of fifth and sixth grade white boys in a rural Wisconsin community.
Methods: A sample of families from schools in two depressed rural white neighborhoods were interviewed. Team interviews involved 4-hour sessions with mothers, and 2-hour sessions each with fathers and sons. Unstructured eliciting techniques were used in the initial interview, followed by a structured questionnaire. A correlational analysis employed Iowa Basic Percentile rank as the dependent variable.
Duration: September 1969-September 1971.
Cooperating group(s): Lake Geneva School District.

27-OF-9 DIFFERENTIAL COPING BEHAVIOR AMONG SIBLINGS

Investigator(s): H. Feldman, Ph.D., Professor; and Margaret C. Unsworth, Research Assistant, Interdepartmental Research Group on Poverty, College of Human Ecology, Cornell University,

Ithaca, New York 14850.
Purpose: To determine the correlates of academic achievement in junior high children with attention to differential academic achievement among siblings.
Subjects: 300 junior high students in rural West Virginia, urban Syracuse, New York, and Ithaca-Elmira-Cortland, New York; two students from each of 150 families (in each area), which have only two children in junior high school. Half of the families have absent fathers.
Methods: A 50-page questionnaire was administered to the subjects individually by trained interviewers. Independent variables studied are intrafamilial, personal, school, and nutritional factors. Statistical treatment will include factor analysis and regression analysis.
Duration: May 1969-September 1971.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-OG-1 THE CHILD'S PERCEPTION OF THE NURSERY TEACHER

Investigator(s): K. D. Feigenbaum, Antioch College, Washington-Baltimore Campus, Columbia, Maryland 21043.
Purpose: To explore the nursery school child's understanding of the teacher's role as perceived in a variety of videotaped interpersonal situations involving the teacher and the child and to analyze the effect of varying the race of the teacher and of the child upon the understanding of the children viewing the scenes.
Subjects: Negro and Caucasian nursery school children.
Methods: A series of video scenes depicting daily interactions between the teacher and the child will be produced. Interactions between Negro/Caucasian, Caucasian/Caucasian, Negro/Negro, and Caucasian/Negro teachers and children will be shown with backgrounds varied so that each of the scenes is duplicated in integrated, segregated Caucasian, and segregated Negro classes. Categories will be constructed to analyze children's (1) responses, (2) ability to decenter and engage in nonegocentric understanding, and (3) perceptions and differences in their understanding of the scenes based on their social class, race, and sex.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Economic Opportunity.

27-OG-2 THE REACTION OF STUDENTS TO A CURRICULUM ORIENTED TOWARDS OCEANOLOGY

Investigator(s): R. S. Day, Portsmouth School Department, Portsmouth, Rhode Island 02871.
Purpose: To determine whether any measurable changes in school spirit and a student's powers of observation and curiosity can be detected when the entire school curriculum is made more relevant to the school's physical environment.
Subjects: High school students enrolled in Portsmouth High School, Portsmouth, Rhode Island.
Methods: Student attitudes towards Portsmouth High School will be determined before and after the curriculum emphasizes oceanography. Academic and vocational courses in oceanography and a Naval Junior ROTC Unit will be adopted. Teachers and students will be trained in the philosophy of the Hurricane Island Outward-Bound School, and a community film lecture series on oceanographic subjects will be established. All procedures will be directed towards the development of a

better *esprit de corps* in the high school by stressing the relevance and emphasizing the yet untapped possibilities of the oceanographic environment of Portsmouth.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-OG-3 EPIDEMIOLOGY OF BEHAVIOR DISORDERS

Investigator(s): Hans R. Huessy, M.D., Professor of Child Psychiatry, Department of Psychiatry, University of Vermont College of Medicine, Burlington, Vermont 05401.
Purpose: To document the natural history of behavior disorders diagnosed in the second grade.
Subjects: 600 second graders in area schools.
Methods: Questionnaires were distributed to teachers three times over 4 1/2 years.
Findings: The teacher questionnaire used in second grade predicts 64 percent of children's behavior problems at the end of grade 4.
Duration: 1965-not reported.

27-OG-4 IMPLOSIVE AND MILIEU THERAPY WITH OLDER SCHOOL PHOBICS

Investigator(s): Lovick C. Miller, Ph.D., Director of Research and Clinical Psychologist; Curtis L. Barrett, Ph.D., Assistant Professor of Clinical Psychology; and Edward Hampe, Ph.D., Assistant Professor of Clinical Psychology, Child Psychiatry Research Center, University of Louisville School of Medicine, 608 South Jackson Street, Louisville, Kentucky 40202.
Purpose: To compare the effects of separation and implosion therapy and therapist variables on older phobic children.
Subjects: 72 phobic boys and girls, ages 11 to 16, out of school 4 of 20 days. Subjects are not psychotic, brain-damaged, mentally retarded, truant, delinquent, physically ill, legitimately excused from school, or more than three grades below academic expectations.
Methods: Subjects diagnosed as phobic were randomly assigned to treatment and to two male therapists. Therapy was limited to 8 weeks. Evaluative procedures included frequency counts of subjects' time in school, independent evaluator rating of adjustment before and after treatment, and completion of the Fear Scale of the Louisville Behavior Check List.
Duration: September 1970-September 1973.
Cooperating group(s): Louisville School of Medicine; Jewish Home for Convalescent Children.

27-OG-5 DETERMINANTS OF CHILDREN'S BEHAVIOR IN PRESCHOOL

Investigator(s): Jacob S. Kounin, Ph.D., Professor of Educational and Clinical Psychology, Wayne State University, Detroit, Michigan 48202.
Purpose: To study the influence of activity structures and teacher styles on the behavior of preschool children.

Subjects: 87 boys and girls, ages 2 1/2 through 5.
Methods: Videotapes were secured of 600 formal lessons taught to small groups of preschool children by 36 different teachers. Videotapes were also secured of 38 children from the moment they arrived at a preschool until they left (half day attendance).
Findings: Significant relationships were found between the kind of activity programmed in a lesson and the degree of work-appropriate behavior and gleefulness of the children.
Duration: 1968-1971.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-OG-6 STUDENT ALIENATION AND FACULTY ROLE PERFORMANCE PREFERENCES

Investigator(s): Charles K. Warriner, Ph.D., Professor, Department of Sociology, University of Kansas, Lawrence, Kansas 66044.
Purpose: To develop necessary instruments and methods and then to make a preliminary investigation of the relationship of student response to faculty role performance.
Subjects: Graduate students and faculty members in two midwestern state universities.
Methods: The university department unit is examined. Four measures of faculty role preferences are used as indicators of interpersonal educational experiences. The questionnaire administered to students included indicators of alienation and anomie, indicators of attitudes about educational experience, and judgments about social action with respect to university and community change.
Findings: Preliminary analyses, without controls for age, degree programs, or other factors, indicate that student attitudes are in many cases a function of faculty role performance preferences. For example, students associated with itinerant faculty are much more extreme in their social action positions.
Duration: February 1970-May 1971.
Cooperating group(s): General Research Fund, University of Kansas; National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare; Office of Education, U. S. Department of Health, Education, and Welfare.

27-OH-1 TOWARDS A PROVISIONAL TEMPORAL SEQUENCE OF ADOLESCENT ACHIEVEMENT

Investigator(s): Richard A. Rehberg, Ph.D., Associate Professor of Sociology, State University of New York at Binghamton, Binghamton, New York 13901.
Purpose: To identify, measure, and place in temporal order some of the structural, social-psychological, and intrapersonal sources of variation in adolescent educational goal orientation.
Subjects: 3,200 adolescents graduating in 1970 from seven urban and suburban, public and parochial schools in southern New York State.
Methods: Surveys of the subjects were made in 1967, 1968, 1970, and will be made in 1971. Statistical procedures used are correlational analysis, path analysis, and multivariate percentage analysis.
Findings: During the freshman year of high school, realistic adolescent educational expectations

are influenced by family socioeconomic level, parental educational encouragement, mobility attitudes, intelligence, and relevant parental achievement socialization practices. Expectations remain rather stable from the freshman to the sophomore year, but much of the influence of the variables mentioned diminishes.

Duration: 1967-1975.

Cooperating group(s): National Science Foundation; National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: Rehberg, R. A., *et. al.* Adolescent achievement behavior, family authority structure, and parental socialization practices. *American Journal of Sociology*, May, 1970, 75, (6), 1012-1032.

27-OK-1 SCHOOL INTEGRATION RESEARCH

Investigator(s): Nancy H. St. John, Ed.D., Lecturer and Research Associate, Harvard University Graduate School of Education, 24 Garden Street, Cambridge, Massachusetts 02138.

Purpose: To determine the factors that influence the achievement of black and white pupils in racially and socioeconomically integrated schools.

Subjects: 957 sixth grade boys and girls, black and white.

Methods: Information about the children was compiled from (1) questionnaires, (2) sociometric records, (3) school records, and (4) observations of classroom interaction. Mothers, teachers, and principals were interviewed. Teachers were rated on Ryan's Scale. Cross-tabular, correlational, regression analyses will be performed.

Duration: Spring 1967-June 1971.

Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

Specific Skills

27-PA-1 EXTRA SCOPE TRANSFER IN LEARNING MATHEMATICAL RULES

Investigator(s): J. M. Scandura, School of Education, University of Pennsylvania, 3700 Walnut, Philadelphia, Pennsylvania 19104.

Purpose: To study the effect of rule-statements on the degree of transfer to new problems in mathematics.

Subjects: High school students assigned to three experimental groups and one control group.

Methods: The hypotheses are (1) that nonspecific transfer depends on the extent to which a rule-statement may be viewed as a restriction of a more general rule-statement, and (2) if transfer to one problem indicates that a particular rule-statement has been generalized, then transfer to additional problems may be expected under certain conditions. A specific-general rule group (SG), a specific rule group (S), and a general rule group (G) will be taught a restricted statement of a generalized rule. All students will be tested on six problems two within the scope of the most

specific generalization of statement (S), the second two in the scope of two more general generalizations of statements (SG) and (G), and the last two in the scope of generalization (G). Important implications for the development of instructional materials, particularly in computer-assisted instruction, are expected from the results.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-PB-1 THE ROLE OF DISTINCTIVE FEATURES AND STRUCTURE IN READING

Investigator(s): Andrew Biemiller, Ph.D., Assistant Professor, Institute of Child Study, University of Toronto, 45 Walmer Road, Toronto 4, Ontario, Canada.
Purpose: To determine the contributions of individual differences, in perceiving distinctive features in letters and in using structure within and between words, to individual differences in reading ability.
Subjects: Equal numbers of boys and girls in grades 1 (N=20), 2 (N=60), 4 (N=20), and 6 (N=20); and 20 adults, 10 males and 10 females.
Methods: Reading rates and reaction times for letters are used as measures of efficient perception of distinctive features. Reading rates and reaction times for words, corrected for letter rates, are used as measures of efficient use of structure in words. Reading rates for texts are used as a measure of general reading ability.
Findings: High correlations between all measures (over .70) suggest that there are critical differences in the ability to detect distinctive features rapidly that lead to serious reading problems. Ability to use structure is less important.
Duration: Spring 1968-spring 1971.
Cooperating group(s): Ontario Institute for Studies in Education.

27-PB-2 THEORETICALLY BASED STUDIES OF PATTERNS OF MISCUES IN ORAL READING PERFORMANCE

Investigator(s): Kenneth S. Goodman, Ed.D., Professor of Elementary Education; and Carolyn L. Burke, Ed.D., Assistant Professor, Wayne State University, Detroit, Michigan 48202.
Purpose: To analyze and compare the miscues of readers' unexpected responses, and to develop a theory and model of the reading process.
Subjects: Negro and Caucasian urban boys and girls in grades 2, 4, 6, 8, and 10 of low, average, and high proficiency.
Methods: The 3-year, study is a baseline study for a continuing series of studies of the reading process at varying levels of proficiency. Groups of readers will read unfamiliar material orally, and their oral miscues will be analyzed according to Goodman's Taxonomy of Miscues. Children at selected levels of maturity and proficiency will be compared, and aspects of their miscues will be explored.
Duration: May 1969-September 1972.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare; Detroit Public Schools.

27-PB-3 LONGITUDINAL STUDY OF CHILDREN'S ORAL READING BEHAVIOR

Investigator(s): Yetta M. Goodman, Ed.D., Associate Professor of Education, University of Michigan, 4901 Evergreen Road, Dearborn, Michigan 48128.
Purpose: To describe children's oral reading patterns from grade 1 through grade 6.
Subjects: Six Negro children, average and slow readers.
Methods: Children are taped four or five times each year while they sight read. Oral miscues are diagnosed and evaluated through the use of Goodman's Taxonomy of Reading Miscues.
Duration: 1966-1972.
Cooperating group(s): Reading Miscue Research; Wayne State University.
Publications: Dissertation, Wayne State University, 1967; *Grade Teacher*, 1969, 86, (7), 144-150; *Reading Teacher*, 1970, 23, (5), 455-459.

27-PB-4 DEVELOPMENTAL AGE AS A PREDICTOR OF READING SUCCESS

Investigator(s): Norman L. Heimgartner, Ed.D., Assistant Professor of Elementary Education, University of Northern Colorado, Greeley, Colorado 80631.
Purpose: To determine if developmental age may be used as a predictor of reading success in the primary grades.
Subjects: 104 Anglo, Hispano, and Negro children, ages 4 years 11 months to 10 years 11 months.
Methods: Each subject was examined by a Gesell Institute-trained test technician, who used the Gesell Developmental Examination. A multiple linear regression was applied to the examination data.
Findings: Using the variables of sex, chronological age, and IQ for the prediction of reading, the square of the multiple correlation coefficient equaled 0.5145. When developmental age was added to the variables, the square of the multiple correlation coefficient equaled 0.8382. Testing will continue for 4 years.
Duration: November 1969-June 1974.

27-PB-5 THE EFFECTS OF AN EDUCATION PROGRAM FOR 4-YEAR-OLDS UPON STUDENT COMMUNICATION ABILITIES AND READING READINESS

Investigator(s): Eddie E. Myers, Ed.D., Senior Research Associate, Psychology Department, Educational Research Council of America, Rockefeller Building, West 6th and Superior Avenue, Cleveland, Ohio 44113.
Purpose: To determine the effects of a specially designed educational program for 4-year-olds on student communication abilities and reading readiness.
Subjects: Experimental group: 20 children randomly selected from the 4-year-old program instituted as a regular part of the elementary school program. Control group I: 20 children selected from an adjacent community with equivalent socioeconomic backgrounds. Control group II: 20 children, age 5, randomly selected from the class immediately preceding the experimental group, who have not had the 4-year-old program experience.
Methods: The Illinois Test of Psycholinguistic Ability (ITPA) was administered as pretests to the

experimental and control groups in fall 1969. Posttests were administered to the experimental subjects and control group I subjects in fall 1970. The Metropolitan Test of Reading Readiness was administered to control group II in spring 1969, and to the experimental group and control group I in spring 1970. Groups were compared by statistical analyses.
Duration: 1969-1972.
Cooperating group(s): Cuyahoga Heights Public Schools.

27-PD-1 **ENHANCEMENT OF IMAGINATIVE PLAY IN POOR CHILDREN THROUGH SPECIALIZED TRAINING**

Investigator(s): Jerome L. Singer, Ph.D., Professor of Psychology and Director, Center for Research in Cognition and Affect, Graduate Center, City University of New York, 33 West 42nd Street, New York, New York 10036.
Purpose: To determine if specialized training techniques in sociodramatic play can improve the level of such play in children, and to examine the concomitance of increased sociodramatic play in relation to task completion, concentration, and positive or negative affect.
Subjects: Nursery school and kindergarten children, ages 3 to 6, primarily minority group members.
Methods: Subjects will be pretested and assigned to research conditions on the basis of their scores on measures of imaginative play predisposition. Control and experimental groups will receive comparable amounts of attention and teacher involvement, but will differ in the degree of emphasis on training in make-believe play. Children's spontaneous play will be rated by independent judges before and after training is instituted.
Duration: January 1971-January 1973.
Cooperating group(s): Harlem Research Center, City University of New York; Psychological Center, City University of New York.

27-PD-2 **A PROBLEM-SOLVING CURRICULUM FOR DISADVANTAGED PRESCHOOL CHILDREN**

Investigator(s): George Spivack, Ph.D., Director, Research and Evaluation; and Myrna B. Shure, Ph.D., Developmental Research Psychologist, Hahnemann Community Mental Health Center, 314 North Broad Street, Philadelphia, Pennsylvania 19102.
Purpose: To test a program designed to increase ability to solve real-life problems in order to enhance behavioral adaptation and positive mental health functioning in young children.
Subjects: 28 boys and girls, 4 years old, who attended Get Set (Head Start) in Philadelphia.
Methods: The subjects were divided into three groups: an experimental training group (N=22), an attention control group (N=11), and a no-treatment control group (N=21). Group distribution was based on (1) pretest scores on the number of options conceptualized to reach a stated goal, (2) teachers' judgments of classroom behavior, (3) measured IQ, and (4) sex. Small subgroups of the training and attention groups were directed by the researchers for 10 weeks. The sequenced training program was designed to develop the children's problem-solving ability.
Findings: Analysis of pre-post change scores revealed that the program had a greater impact on cognitive problem-solving skills than on behavior. The trained subjects improved on more behavior

factors than either control group.
Duration: September 1969-not reported.
Cooperating group(s): Pre-Kindergarten Project of Philadelphia; Hahnemann Community Mental Health Center.

Special Education

27-QB-1 LEARNING THROUGH AVIATION

Investigator(s): R. Mullen, Richmond Unified School District, 1108 Bissel Avenue, Richmond, California 94801.
Purpose: To determine the effects of an aviation-related course of study (designed to motivate and produce desirable changes in behavioral styles, aspiration levels, and social competencies) on eighth grade underachievers.
Subjects: 60 eighth grade boys, 2/3 Negro, in the Richmond Unified School District, Richmond, California.
Methods: Thirty experimental and 30 control subjects were matched on sex, age, race, parental permission, standardized test scores, previous grades, socioeconomic status, behavioral records, and classification as underachievers. Selected youths were physically capable of flying. The experimental group was instructed in English, social studies, mathematics, and industrial arts, using special aviation-related materials; made aviation-related field trips; and received at least 12 hours of flight instruction. Results were assessed by measurements and comparisons of (1) inferred change expressed as changes in attitudes towards school, in self-concept, and level of aspiration, (2) disclosed change evidenced by classroom behavior, and (3) operational change indicated by student records. The school administration's flexibility in meeting problems generated by the innovative course, and teachers' attitudes towards disadvantaged youths and the program were assessed. Parents' and flight instructors' reactions to the program were assessed by follow-up interviews.
Duration: July 1969-June 1970.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

27-QB-2 PROGRAMMING INTERPERSONAL CURRICULA FOR ADOLESCENTS (PICA)

Investigator(s): Harold L. Cohen, B.A., Executive Director; James Filipczak, M.S., Associate Educational Director; Joseph Slavin, Ph.D., Research Associate; and John Boren, Ph.D., Research Associate, Institute for Behavioral Research, Inc., 2429 Linden Lane, Silver Spring, Maryland 20910.
Purpose: To develop and assess curricula for students who experience school failure and social difficulty.
Subjects: 12 students per school year, who experience a history of failure or social difficulty in

school and social difficulty in the community. Students, ages 12 to 16, who reside in the District of Columbia and in Montgomery County and Prince Georges County, Maryland.

Methods: Students are involved in a half-day school, half-day PICA program. Wages are paid to the students based on their performance in PICA remedial mathematics and English programs. The subjects are provided with a variety of consequences for performance in PICA trained skills as revealed in follow-up studies with their regular schools. Remedial study skills and interpersonal relations programs are part of the PICA designed curricula. Parents are trained to manage student behavior in the home. Individual and group data are gathered on all program components.

Findings: Grade increases of 2 to 4 years have occurred in selected subtests of mathematics and English standardized tests. Social behavior improved as a function of applied differential consequences. Increased control of home and community behavior occurred as functions of parent training and contingency control programs.

Duration: June 1968-May 1972.

Cooperating group(s): District of Columbia Public Schools; Montgomery County Public Schools, Maryland; Prince Georges County Public Schools, Maryland; Center for Studies of Crime and Delinquency, National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: Yearly project progress reports are available from the Institute for Behavioral Research.

27-QD-1 **WORKING WITH EMOTIONALLY DISTURBED INNER CITY CHILDREN: AN ADVENTURE IN COOPERATION PETWEEN SCHOOL AND AGENCY**

Investigator(s): Elsa A. Miller, M.A., Director; Henriette Woolf, M.A., Psychologist; A. Dente, M.A., Social Service Worker; and H. Sharnoff, M.A., Social Service Supervisor, Episcopal Center for Children, 5901 Utah, N.W., Washington, D. C. 20015.

Purpose: To develop a relatively inexpensive program for emotionally disturbed children that could be adopted without revisions in District of Columbia schools.

Subjects: 70 emotionally disturbed Negro males, initial ages 5 to 8; 35 enrolled in public schools and 35 enrolled in the Episcopal Center Day Program. All children were from Title I, poverty level schools.

Methods: Experimental and matched control subjects were selected according to chronological age, IQ, and type of emotional problem. They were initially tested on the Stanford Binet. Experimental children in the Day Program attended small classes for short school periods and were supervised by male counselors on the playground. Some children had individual therapy; all children received enrichment experiences.

Findings: The children were gradually replaced in public schools, and a follow-up study was conducted. When placed in a sympathetic environment, experimental subjects maintained their gains on a behavioral level better than the control subjects.

Duration: March 1966-June 1970.

Cooperating group(s): District of Columbia Schools; Catholic University of America.

27-CD-2 GROUP INTEGRATION AND BEHAVIORAL CHANGE PROJECT

Investigator(s): Ronald A. Feldman, Ph.D., Principal Investigator, Jewish Community Centers Association, and Associate Professor, School of Social Work; John S. Wodarski, Ph.D., Research Director, Jewish Community Centers Association, and Adjunct Professor; Norman Flax, M.S.W., Group Work Supervisor, Jewish Community Centers Association, and Research Associate, School of Social Work; and Mortimer Goodman, M.A., Project Co-Director, Jewish Community Centers Association, 11001 Schuetz Road, St. Louis, Missouri 63141, and Adjunct Professor, School of Social Work, Washington University, St. Louis, Missouri 63130.

Purpose: To examine treatment strategies, types of group composition, and degrees of worker training in order to assess the factors that produce the greatest behavior change in antisocial and prosocial children.

Subjects: 42 groups of children that consist of 8 to 12 males, ages 9 to 16. Twelve groups will consist of antisocial subjects; 18 groups will consist of prosocial subjects plus one antisocial subject; and 12 groups will consist of prosocial subjects. Antisocial children are defined as children who exhibit a high incidence of behaviors that disrupt interactional situations in which children participate. Prosocial children exhibit a low frequency of these behaviors.

Methods: Baseline measurements of subjects' behavior will be made. Behavioral checklists, interviews, and questionnaires will be used to assess the effects of the treatment strategies (social learning, traditional group, and group-centered); group composition (antisocial, mixed, and prosocial); and the extent of worker training on subjects' behavior. Statistical treatment will consist of analysis of variance with orthogonal comparisons and multicorrelational analysis.

Duration: September 1970-August 1974.

Cooperating group(s): Jewish Family and Children's Services; Special School District, St. Louis County; St. Louis Juvenile Court; Miriam School; Our Lady of Grace Child Care Center; Lakeside Center for Boys of St. Louis County; Edgewood Children's Home; Child Evaluation Clinic, Washington University.

27-CD-3 EARLY CHILDHOOD SPECIAL EDUCATION LABORATORY

Investigator(s): John Meier, Ph.D., Director, John F. Kennedy Development Center, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

Purpose: To determine the relative efficacy of different preschool programs for handicapped children, and to determine the effect of normal peer tutors on handicapped children in integrated programs.

Subjects: 24 developmentally disabled, perceptually handicapped, environmentally deprived, or emotionally disturbed children, ages 4 to 6; 24 normal peers.

Methods: Six handicapped and six normal children attend each of four programs: System for Open Learning, Autotelic Responsive Environment, Behavior Modification, and Becker-Englemann. Pre- and postprogram comparisons are made on group and individual bases in terms of social, emotional, and intellectual growth as determined by anecdotal observations, standardized observations, and tests.

Duration: September 1970-June 1973.

27-QD-4 PRIMARY PREVENTION OF MENTAL DISORDERS

Investigator(s): Jerome L. Schulman, M.D., Staff Psychologist; Robin C. Ford, M.A., Coordinator; Patricia Busk, M.A., Statistician; and Clifford J. Kaspar, Ph.D., Associate Investigator, Child Guidance and Development Clinic, Children's Memorial Hospital, 2300 Children's Plaza, Chicago, Illinois 60614.

Purpose: To design, construct, and evaluate instructional units that concern problem areas common to all elementary school children.

Subjects: Fourth through eighth grade public and parochial school students in regularly constituted classrooms in school districts that are representative of selected socioeconomic groups.

Methods: Instructional units constructed to date concern friendship, honesty, self-concept, fear, and relations with adults. Classrooms within a school building (at each grade level) are randomly assigned to experimental or control conditions. One week before each unit begins, all subjects receive a pretest battery designed to measure the concept(s) to be covered in the unit. One week after the unit ends, identical or alternate form batteries are administered. A factorial design, multivariate analysis of covariance, is used to analyze data. Instruments are selected from the research literature pertinent to the field of each unit.

Findings: Analysis of pre- and postsociometric information was conducted to measure the impact of the unit dealing with friendship. There was a significant difference in the predicted increase of the number of reciprocated choices made within a classroom for all fourth grades and for all boys in the sample. Sixth and eighth grades and girls showed no change.

Duration: June 1969-May 1974.

Cooperating group(s): National Institutes of Health, U. S. Department of Health, Education, and Welfare; Children's Memorial Hospital.

27-QE-1 GROUP COMPLIANCE IN YOUNG DISADVANTAGED CHILDREN: EFFECTS OF INDIVIDUAL AND GROUP REINFORCEMENT CONTINGENCIES

Investigator(s): Paul Weisberg, Ph.D., Associate Professor of Psychology, Early Childhood Day Care Center, Box 6234; and Patricia Clements, B.A., University of Alabama, University, Alabama 35486.

Purpose: To examine the development and modification of compliance behavior in young children.

Subjects: Six boys and six girls, ages 2 to 3.

Methods: Compliance was recorded during snack time. A female teacher issued a series of 30 simple but different commands which, except for some baseline sessions, were always demonstrated by the teacher. Baseline measurements of group compliance were made over 18 sessions. Experimental modification of group compliance was attempted during several trials of various reinforcement paradigms. In Trial 1, an always compliant adult confederate was given trinkets plus teacher praise for 12 sessions in full view of the children, whose compliance was not rewarded. Trial 2 consisted of four nonreinforced sessions. Four children in successive order were exclusively reinforced for compliance for at least five sessions each (Trial 3). During intermittent reinforcement (Trial 4), the children were divided into three groups, matched for compliance, and on any one test, members of only one subgroup were eligible for reinforcement. The lowest ranking subgroup complier had reinforcement priority, and if he did not respond, priority shifted

to the next higher complier. After nine sessions, one child's compliance continued to be rewarded for eight sessions (Trial 5). A period of nonreinforcement (Trial 6) was instituted for 19 sessions followed by a reinstatement of the intermittent reinforcement (Trial 7).

Findings: Throughout the baseline sessions, group compliance remained low regardless of whether the teacher commanded (mean intersession compliance equaled 12 percent), demonstrated (17 percent), or commanded and demonstrated (9 percent). Percentages of group compliance during the trials were: Trial 1, 14 percent; Trial 2, 11 percent; Trial 3, 17 percent; Trial 4, 65 percent; Trial 5, 59 percent; Trial 6, 40 percent; and Trial 7, 59 percent.

Duration: April 1970-October 1970.

Cooperating group(s): Southern Educational Foundation.

27-QE-2 EARLY CHILDHOOD INTERDEPARTMENTAL PROJECT

Investigator(s): Jane Beasley Raph, Ed.D., Professor of Developmental Psychology, Graduate School of Education, Rutgers University, 10 Seminary Place, New Brunswick, New Jersey 08903.

Purpose: To determine the effects of three curriculum models on young inner city children.

Subjects: 230 prekindergarten and kindergarten inner city children from New Brunswick.

Methods: The three curriculum approaches are (1) direct language instruction, (2) Piagetian-derived instruction, and (3) preceptual-motor training. Pre-, midyear, and posttesting will be conducted, using a battery of tasks related to each model. Three behavior rating scales will be used to identify potential problems of young inner city children.

Duration: January 1968-June 1971.

Cooperating group(s): New Jersey State Department of Education; Bureau of Education for Handicapped, Office of Education, U. S. Department of Health, Education, and Welfare.

27-QE-3 EARLY CHILDHOOD LANGUAGE STIMULATION PROGRAM

Investigator(s): A. Barclay, Ph.D., Professor of Psychology, Department of Psychology, St. Louis University, St. Louis, Missouri 63103.

Purpose: To facilitate language development, socialization, and cognitive growth in disadvantaged children.

Subjects: 20 black disadvantaged boys and girls under 4 years of age of comparable socioeconomic status; and a control group.

Methods: A language development specialist and a child development worker provided services 1 hour a week to the subjects' mothers at home. The program focused on language development and socialization. Progress of the children was assessed by the Bayley Infant Scales and the Vineland Maturity Scale.

Findings: The Bayley Scales indicated an improvement over a 9-month period of the experimental group relative to the control group. The study will be projected over a longer period to observe the stability of the effect.

Duration: October 1969-October 1971.

Cooperating group(s): Parent Child Centers Division, Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-QE-4 **EFFECT OF REINFORCEMENT FOR ACHIEVEMENT BEHAVIORS IN DISADVANTAGED CHILDREN**

Investigator(s): Pauline S. Sears, Ph.D., Research Associate, Stanford Center for Research and Development in Teaching, 770 Welch Road, Palo Alto, California 94304.
Purpose: To investigate the effectiveness of teaching skills designed for subgroups of students who differ in motivational variables.
Subjects: Approximately 320 fourth graders in Ravenswood District, East Palo Alto.
Methods: The Sears Self-Concept Inventory and the Hess Locus of Control Inventory will be administered during the fall and spring to each subject. Teacher workshops on motivation (experimental condition) and science (control condition) will be held. Observer ratings of teacher-pupil interactions, results of self-concept and control inventories, and the results of a teacher attitude inventory will be used to evaluate the relationship of teacher attitude and behavior to children's self-concept and achievement, and to evaluate the effectiveness of the experimental workshops.
Duration: September 1970-June 1973.

27-QE-5 **A MONTESSORI PROGRAM ENHANCED FOR TITLE I PRESCHOOLERS**

Investigator(s): Janine P. Coury, M.A., School Psychologist, Psychological Services, Memphis City Schools, 2597 Avery Avenue, Memphis, Tennessee 38112.
Purpose: To minimize the deficit of disadvantaged children in perceptual, cognitive, psychomotor, and verbal skills through an optimum input of specially selected experiences; and to help disadvantaged children learn how to learn.
Subjects: 21 Negro children, ages 4 and 5, whose families meet the Title I poverty criteria; 20 control Title I preschoolers attending a church sponsored day care center. (The project will be expanded to serve 90 children.)
Methods: The Stanford-Binet Intelligence Scale (Form LM) and the Marianne Frostig Developmental Tests of Visual Perception were administered to the experimental group to obtain preprogram data. The tests will be re-administered to the experimental and the control group for postprogram comparisons.
Duration: November 1970-June 1971.
Publications: Results of the program will be available from Psychological Services, Memphis City Schools.

27-QE-6 **PROJECT CATCH-UP: AN EDUCATIONAL PROGRAM FOR DISADVANTAGED JUNIOR HIGH YOUTH**

Investigator(s): Evelyn P. Mason, Ph.D., Professor of Psychology, Western Washington State College, Bellingham, Washington 98225.
Purpose: To alter the negative self-concepts, limited motivation, and poor academic achievement of adolescents.
Subjects: 250 junior high students, of American Indian, Mexican, and Anglo ethnic backgrounds,

selected from teacher referrals based on judgments of academic potential, achievement below potential, and socioeconomic deprivation.

Methods: Students, 50 in each of five summer projects, resided with teachers in attractive college dormitories for 6 weeks, attended classes, participated in cultural activities, and engaged in field trips. Contact is maintained with each group of students during the following academic year.

Findings: The significant increment in the students' academic achievement, evidenced during the summer programs, was not maintained when students returned to regular classes; however, significantly fewer participants have dropped out of high school than would be expected from regional norms.

Duration: June 1966-June 1974.

Cooperating group(s): Rockefeller Foundation; Western Washington State College; area social agencies and schools; Office of Education, U. S. Department of Health, Education, and Welfare; National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: *Journal of Social Psychology*, 1967, 73, 145-155 and 1969, 77, 15-24; *Perceptual and Motor Skills*, 1968, 27, 934; *Psychology in the Schools*, 1968, 5, 272-277; 1969, 6, 25[illegible]7; and 1971 (in press).

27-QE-7 THE EFFECTS OF DIFFERENT LEVELS OF HOME INTERVENTION ON INFANT DEVELOPMENT

Investigator(s): Bettye M. Caldwell, Ph.D., Director; Rosanne Gmuer, M.A., Research Director; Ann Campbell, B.A., Research Assistant; Barbara Huban, Research Assistant; and Nancy Goss, M.A., Research Assistant, Center for Early Development and Education, University of Arkansas Medical Center, Little Rock, Arkansas 72201.

Purpose: To determine the relative effectiveness of different levels of home intervention on infant development; to determine the age at which the rate of development begins to decline; and to determine which skills first exhibit the decline.

Subjects: Approximately 80 infants and their mothers from low income areas in Little Rock, Arkansas.

Methods: Infants will be tested monthly from ages 8 to 12 months, bi-monthly from ages 14 to 24 months, and quarterly from ages 24 to 36 months. Four experimental treatments will be instituted: testing only, testing and brief educational sessions with the mother, home visits that combine counseling and education, and enrollment in an infant education program. Decline in development will be related to data on the amount of support that is available for the children in their homes.

Duration: October 1970-June 1973.

Cooperating group(s): Department of Pediatrics, University of Arkansas Medical Center; Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-QE-8 MOTIVATIONAL AND COGNITIVE CHANGE RELATED TO A PROGRAM FOR PARENTS AND CHILDREN

Investigator(s): Leon A. Rosenberg, Ph.D., Director of Research, Martin Luther King, Jr. Parent and Child Center, and Assistant Professor of Pediatrics, Johns Hopkins University School of

Medicine, Baltimore, Maryland 21205.
Purpose: To measure the effects of a program designed for inner city families in terms of achievement motivation, cognitive development, and family life.
Subjects: Children, 9 months to 3 years of age, who live in public housing; their parents and siblings; and a control group.
Methods: The children were observed through videotape equipment. Subjects and controls were tested on cognitive development. Mothers were observed at the Martin Luther King, Jr. Center and as members of a formal training group.
Findings: Children in the experimental group showed significant improvement in performance on tests such as the Cattell Infant Intelligence Scale.
Duration: July 1969-June 1972.
Cooperating group(s): Johns Hopkins Hospital and Medical School; Community Action Agency of Baltimore; Baltimore City Council; Office of Child Development, U.S. Department of Health, Education, and Welfare.

27-QE-9 VERBAL RULE VERSUS GUIDED DISCOVERY TRAINING IN CLASSIFICATION FOR KINDERGARTEN CHILDREN FROM TWO SOCIOECONOMIC LEVELS

Investigator(s): Shlomo Sharan, Ph.D., Assistant Professor, Departments of Psychology and Educational Sciences, Tel-Aviv University, Ramat Aviv, Tel-Aviv, Israel.
Purpose: To study the effects of classification training on disadvantaged and middle class children.
Subjects: 96 lower and middle class kindergarten children, age 5 years, 6 months.
Methods: Classification training methods used were the guided discovery techniques devised by Irving Sigel and the verbal rule training method devised by the investigator. The verbal rule method employed the same objects and the same number of training hours as the Sigel method. A control group engaged in various activities that included constructing designs with blocks and copying geometric designs. A battery of tests, administered once before and twice after training, consisted of Vocabulary and Similarities Subtests from the Wechsler Preschool and Primary Scale of Intelligence, Sigel's Matrix Test, conservation of liquids tasks, Moss' Draw-A-Line Test, and an adaptation of Siegel's Object Sorting Test.
Duration: Completed.
Cooperating group(s): Institute for Research in the Education of Underprivileged Children, The Hebrew University, Jerusalem, Israel; Israel Ministry of Education.

27-QH-1 VISUAL AND AUDITORY DIAGNOSTIC-PRESCRIPTIVE PERCEPTUAL MODIFICATION FOR HANDICAPPED CHILDREN IN RESOURCE ROOMS

Investigator(s): David A. Sabatino, Ph.D., Associate Professor of School Psychology, Pennsylvania State University, 119 Rackley Building, University Park, Pennsylvania 16802.
Purpose: To initiate prescriptive teaching of perceptual strengths.
Subjects: 6- to 12-year-old boys and girls of normal intelligence who have had a year or more of perceptual deficiency.
Methods: Isolated visual and auditory perceptual training materials will be presented for 24 weeks to children placed in auditory and visual perceptual preference groups.
Findings: 32 children were isolated into a visual perceptual preference group and 34 into an

auditory perceptual preference group. During the initial analysis statistical differences were found in matching perceptual preference for type of instruction.
Duration: September 1970-August 1971.

27-OH-2. **SERVICE PROGRAM—SPECIAL EDUCATION: EDUCATION FOR MULTIPLY HANDICAPPED DEAF CHILDREN**

Investigator(s): Marny W. Olson, Curriculum Projects Director, Indiana School for the Deaf, 1200 East 42nd Street, Indianapolis, Indiana 46205.
Purpose: To establish standards, criteria, and guidelines for a model instructional and training program for deaf children who have secondary handicaps of mental retardation or perceptual deficiency.
Subjects: Five multiply handicapped deaf children, ages 7 to 10, two boys and three girls, residents of the Indiana School for the Deaf.
Methods: A trained and experienced teacher of the deaf, with additional experience in working with multiply handicapped deaf children, will direct and conduct the educational program. Four home supervisors will provide around-the-clock supervision, protection, and training assistance. Food service, medical care, recreational facilities, psychological service, audiological services, and other institutional resources will be utilized. Whenever feasible, the children will be integrated into the regular school program. Professional evaluation of the children will be made at intervals during the project. Appropriate testing materials will be used, observational and anecdotal records maintained, and continuous experimentation with methods, materials, and techniques will be promoted.
Duration: September 1970-June 1971.
Cooperating group(s): Office of Education, U.S. Department of Health, Education, and Welfare.

27-OH-3 **THE EFFECTS OF LEARNING GAMES UPON SELECTED ACADEMIC COMPETENCIES OF CHILDREN WITH LEARNING DIFFICULTIES**

Investigator(s): Bryant J. Cratty, Ed.D., Professor and Director, Perceptual-Motor Learning Laboratory, University of California, Los Angeles, California 90024.
Purpose: To explore the influence of vigorous games containing academic operations upon the operations performed in the games.
Subjects: 250 Negro and Mexican-American boys and girls, ages 6 to 10, enrolled in inner city Los Angeles schools, who scored poorly on tests evaluating academic potential.
Methods: Experimental groups were exposed to learning games that purported to enhance various attributes; e.g., self-control, serial memory, spelling pattern, and letter recognition. Controls included groups exposed to regular classroom activities such as passive small-group tutoring and traditional physical education.
Findings: The children exposed to learning games showed more marked improvement on most measures than the children within various control groups, including those who received small-group tutoring in a classroom.
Duration: 1968-1972.

Cooperating group(s): Los Angeles Catholic Archdiocese, Elementary School Branch.
Publications: Cratty, Bryant J. *Active Learning*. Englewood Cliffs, New Jersey: Prentice Hall, 1971. Monograph available from UCLA, Department of Physical Education.

27-QH-4 THE PRESCHOOL MULTIPLY HANDICAPPED CHILD

Investigator(s): Harold W. Perry, Director, Division of Special Education, Memphis City Schools, 2597 Avery Avenue, Memphis, Tennessee 38112.
Purpose: To evaluate the potential of severely afflicted multiply handicapped young children.
Subjects: 13 handicapped children, ages 3½ to 8, diagnosed as cerebral palsied and brain-damaged. Most of the children are nonambulatory.
Methods: The program involves vocabulary development, matching games, exercises in recognizing likenesses and differences, listening activities, free play, painting, cutting, coloring, molding clay, and music activities. As a diagnostic setting in which the child's future educational placement is considered, the classroom will complete services needed for multiply handicapped children, preschool through grade 12. The physical environment is relaxed and unstructured in order to stimulate learning at a realistic level, to help the children gain normal preschool experiences, and to encourage them to associate learning with pleasurable experiences.
Duration: June 1969-not reported.
Cooperating group(s): Department of Public Welfare, Memphis-Shelby County Health Department; Les Passees Rehabilitation Center; Child Development Center; Memphis Speech and Hearing Center; Memphis State University.

27-QH-5 PARENTAL MATERIALS FOR TEACHING SELF–HELP SKILLS TO MULTIPLY HANDICAPPED CHILDREN

Investigator(s): Wayne D. Lance, Ed.D., Director, Northwest Regional Special Education Instructional Materials Center, University of Oregon, Clinical Services Building, Eugene, Oregon 97403.
Purpose: To develop curriculum and materials to instruct parents to teach self-help skills to young multiply handicapped children.
Subjects: Multiply handicapped preschool children and their parents.
Methods: A task analysis approach will be used to determine a basic core of self-help skills considered relevant to the subjects. Each skill will be broken down into instructional steps and analyzed for prerequisite skills, subskills, and proper sequencing. Instructional procedures based on chaining and other methodology will be analyzed and recorded. These procedures will be used with groups of parents working with children, and modifications will be made based on the results of parent-child interactions. Instructional materials for children will be evaluated and new materials will be developed if necessary. A self-instructional program and instructional materials for parents will be developed. The program will be field tested with groups of parents and their children in various settings and under varying degrees of supervision. The program will be packaged and distributed through the network of Special Education Instructional Materials Centers and Early Education Research Center.

Duration: July 1970-October 1971.
Cooperating group(s): Center for Research and Demonstration in the Early Education of Handicapped Children.

27-QH-6 A PARENT TEACHING PROGRAM FOR LANGUAGE HANDICAPPED CHILDREN UNDER 4

Investigator(s): Freeman McConnell, Ph.D., Director; and Kathryn B. Horton, Chief, Language Development Programs, Bill Wilkerson Hearing and Speech Center, 1114 19th Avenue S., Nashville, Tennessee 37212.
Purpose: To provide early intervention for language handicapped children.
Subjects: 50 to 70 children, ages birth to 4 years, who are deaf, cerebral palsied, retarded, or multiply handicapped; and whose language development is seriously delayed or negligible.
Methods: The educational model followed in the program emphasizes the role of the parent and is designed to overcome the developmental and subsequent educational lag that results from inadequate attention to critical development periods. Techniques used in the study include demonstration teaching in a model home for individual families, group-oriented parent teaching, and individual child-oriented instruction of language deficient children grouped with linguistically normal children.
Duration: June 1970-June 1973.

27-QH-7 EFFECT OF A SELECTION PROCEDURE ON THE PLACEMENT OF CHILDREN IN SPECIAL SCHOOLS

Investigator(s): P. D. Pumfrey, M.Ed., Lecturer, Department of Education, Child Study Centre, University of Manchester, M13 9PL, Manchester, England.
Purpose: To analyze possible sources of bias in the selection of children to attend special schools.
Subjects: All pupils (N=488) admitted to the special school system of an Education Authority. Subjects were ages 7 to 8, 10 to 11, and 14 to 15.
Methods: Allocation procedures are examined according to the children's dates of birth. The results of a Special Educational Treatment Survey are analyzed. Data are collected from the schools and from the Schools Psychological Service. Chi-square tests are used to evaluate the data.
Findings: Variations in selection procedures between year groups are related to a bias towards the selection of younger, duller children for special education in a given year group. A follow-up study is being conducted.
Duration: 1968-1971.

27-QH-8 SURVIVAL SKILLS IN THE PRIMARY GRADES

Investigator(s): Joseph A. Cobb, Ph.D., Associate Researcher, Oregon Research Institute, and Assistant Professor, Department of Special Education, University of Oregon; and Gerald R. Patterson, Ph.D., Research Associate, Oregon Research Institute, and Professor, Department of

Special Education, University of Oregon, Eugene, Oregon 97405.
Purpose: To identify and change children's survival skills in the primary grades and to depict the school as a social system.
Subjects: Handicapped children in the primary grades and a control group.
Methods: Standardized tests and observation procedures were used to select children low in appropriate survival skill behaviors and low in task oriented behavior. Several methods, based on social learning theories, are used to change children's survival skills. Intervention occurs in the regular classroom; teachers and peers act as the primary change agents. The social system conceptualization will be partially based on observations of social interaction in various areas of the school; e.g., the classrooms, the teachers' room, and the principal's office.
Duration: 1969-1974.
Cooperating group(s): Central Midwestern Regional Educational Laboratory, Inc.; Bureau of Education for Handicapped, Office of Education, U.S. Department of Health, Education, and Welfare.
Publications: Information on the identification phase is available from CEMREL or from the investigators.

27-QH-9 EXPERIMENTAL ANALYSIS OF COMPLEX SCHEDULE PERFORMANCES IN PRESCHOOL CHILDREN

Investigator(s): Evalyn F. Segal, Ph.D., Professor of Psychology and Director of the Institute for Child and Family Development; and Aaron J. Brownstein, Ph.D., Professor of Psychology, University of North Carolina at Greensboro, Greensboro, North Carolina 27412.
Purpose: To examine the performance of children under concurrent schedules, second-order schedules, and concurrent chain schedules of unconditioned and conditioned reinforcement.
Subjects: Children, ages 3 to 5, in full day care at a laboratory nursery.
Methods: The performance of children under concurrent schedules, second-order schedules, and concurrent schedules of unconditioned and conditioned reinforcement will be analyzed. Children will press levers, push buttons, vocalize, dial telephones, and make other responses. Reinforcers will be consumable items, manipulatable items, and tokens that are exchangeable for backup reinforcers in the nursery.
Duration: October 1970-January 1973.
Cooperating group(s): Infant Day Care Project, University of North Carolina at Greensboro.

27-QH-10 THE HUMANIZATION PROCESS

Investigator(s): Robert L. Hamblin, Ph.D., Director, Instructional Systems Program; David Buckholdt, Ph.D.; Daniel Ferritor, Ph.D.; Martin Kozloff, Ph.D.; and Lois Blackwell, Central Midwestern Regional Educational Laboratory, Inc., 10700 St. Charles Rock Road, St. Ann, Missouri 63074.
Purpose: To develop classroom behavior modification techniques that are effective for various groups of children.
Subjects: Two classes of suburban preschoolers; one class of inner city black preschoolers; six

classes of inner city black kindergarten students; seven classes, grades 1 to 4, of inner city black students; three special classes of hyperaggressive, hyperdisruptive boys, preschool through intermediate school levels; and 18 autistic children.

Methods: Approximately 35 behavior modification experiments have been conducted with students in classroom situations. Observational measures of behavior and standardized tests of intelligence and academic achievement are employed in the evaluation.

Findings: Effective behavior modification techniques have been developed to control classroom behavior and to accelerate academic achievement of children in all of the categories studied.

Duration: April 1966-April 1971.

Cooperating group(s): Central Midwestern Regional Educational Laboratory, Inc.

Publications: Hamblin, Robert L.; Buckholdt, David; Ferritor, Daniel; Kozloff, Martin; and Blackwell, Lois. *The Humanization Process*. New York: John Wiley and Sons, Inc. (expected publication date, April 1971).

SOCIAL SERVICES

27-RA-1 **NATIONAL STUDY OF THE FURTHER EDUCATION, TRAINING, AND EMPLOYMENT OF HANDICAPPED SCHOOL LEAVERS**

Investigator(s): Ronald Smith, M.A., Senior Research Officer, National Children's Bureau, Adam House, 1 Fitzroy Square, London, W.1., England.
Purpose: To determine the adequacy of services available to severely or multiply handicapped children who leave school.
Subjects: 1,700 handicapped children (equal numbers of boys and girls): 600 physically handicapped, including epileptics and children with speech defects; 600 educationally subnormal; 200 blind or partially sighted; 200 deaf or partially hearing; and 100 maladjusted. Multiply handicapped children are included in each group. The sample is representative of the population of handicapped children who left special day and residential schools in 1969.
Methods: Questionnaires were issued to the subjects during their last year of school to collect extensive personal information; including details of home background, medical history, educational progress, and vocational ambitions. Records of the youth employment service, compiled during the subjects' last year at school and at the time of departure, have been obtained. A follow-up study will be conducted after the subjects have been out of school for 18 months. Interviews will be arranged with the subjects, their parents, and their employers.
Duration: 1967-1972.
Cooperating group(s): Department of Health and Social Security; Department of Education and Science; Department of Employment and Productivity.

27-RB-1 **THERAPEUTIC EXPLORATIONS WITH ADOLESCENTS**

Investigator(s): William F. Soskin, Ph.D., Director, Research Psychologist; and Sheldon J. Korchin, Ph.D., Professor and Head, Psychology Clinic, University of California, Berkeley, California 94720.
Purpose: To develop an innovative educational-therapeutic youth program focused on drug abuse, alienation, and similar contemporary youth problems.
Subjects: 140 self-selected senior high school students from Berkeley High School and adjoining communities.
Methods: In a house located a mile from the high school, Project Community offers a varied program of small group sessions and a variety of workshops in self-awareness. Members attend during or after school one to four afternoons a week. High school credit is offered to participants.
Duration: February 1969-June 1973.
Cooperating group(s): Ford Foundation; National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-RB-2 **INTO THE MAINSTREAM–BRIDGING THE GAP BETWEEN DISADVANTAGED YOUTH AND OTHER YOUTH IN THE METROPOLITAN WASHINGTON AREA**

Investigator(s): Donald F. Sullivan, National Conference of Christians and Jews, Inc., 735 Southern Building, 1425 H Street, N.W., Washington, D. C. 20005.
Purpose: To understand the problems of youths who are behaviorally disordered because of racial or economic isolation, and to help them move into the mainstream of community life.
Subjects: Junior and senior high school students in the Washington, D. C. metropolitan area.
Methods: The focus of the study will be to develop four types of programs relating to community values. (1) Various projects will be designed to improve the understanding and cooperation between disadvantaged youths and the 14th Precinct police. (2) Youths will be trained in creative writing, critical thinking, problem analysis, and problem solving by producing plays to present to community groups. (3) Students, school board members, principals, teachers, and counselors will participate in workshops to discuss causes of problems and to initiate procedures to correct them. (4) Meetings with businessmen and students will be arranged to facilitate work training opportunities and to provide the students with a broader view of employment opportunities.
Duration: December 1968-December 1971.
Cooperating group(s): Social and Rehabilitation Service, U. S. Department of Health, Education, and Welfare; Leo Kramer, Inc.

27-RB-3 **INTERMEDIATE TREATMENT PROJECT: A STUDY OF FAMILY ADVICE CENTRE BASED SERVICES FOR CHILDREN AND YOUTH IN THE COMMUNITY**

Investigator(s): M. L. Kellmer Pringle, Ph.D., Director, National Bureau for Cooperation in Child Care, 1 Fitzroy Square, London, W.1., England.
Purpose: To define and demonstrate an intermediate treatment approach based on voluntary participation and community involvement.
Subjects: Children and youth served by seven Family Advice Centres.
Methods: Information is obtained through analyses of process records and reports submitted by the staff and analyses of questionnaire and interview data. A senior research officer supervises the youth workers and provides on-the-job training.
Duration: April 1970-April 1974.
Cooperating group(s): Home Office, Children's Department; Local Authority Social Services Departments.

27-RC-1 **ANALYSIS OF GROUP CONTENT–CRITTENTON CARE CENTER FOR TEENAGE UNWED MOTHERS**

Investigator(s): Jean E. Bedger, M.A., Clinical Psychologist and Research Director, Florence Crittenton Association of America, 609 South Dearborn Street, Chicago, Illinois 60605.
Purpose: To analyze the progress of adolescents participating in therapeutic group work involving social work and nursing intervention.

Subjects: Seven groups of teenage unwed mothers.
Methods: A minimum of 15 group sessions (15 adolescents per group) will be tape recorded. The Bostor. Model of Group Development is used as a theoretical growth model and group responses are analyzed.
Findings: Groups tend to proceed according to the theoretical model. It is possible to measure progress.
Duration: October 1968-August 1970.
Cooperating group(s): Illinois Department of Public Health; Chicago Board of Health.

27-RC-2 **A COMPARATIVE STUDY OF UNWED MOTHERS WHO KEEP AND CHOOSE NOT TO KEEP THEIR CHILDREN**

Investigator(s): Alan R. Gruber, D.S.W., Director of Research; and Nancy Carmel, M.S.W., Director, Project Walnut, Boston Children's Service Association, 3 Walnut Street, Boston, Massachusetts 02108.
Purpose: To identify the differential characteristics of unwed mothers who choose to keep their children, and of unwed mothers who choose to give up their children; to identify the factors that shape their decisions; and to determine if there is a need for new postnatal social service programs.
Subjects: 200 unwed mothers, ages 18 to 23.
Methods: One group of unwed mothers that chooses to keep their children, and another group that elects to give up their children will be compared on demographic, social, and psychological variables. Questionnaires, interviews, and case record material will be used to compile information.
Duration: September 1970-June 1971.
Cooperating group(s): Boston University School of Social Work.

27-RD-1 **RECRUITMENT OF ADOPTIVE HOMES: EXPERIENCE SURVEY**

Investigator(s): Ira H. Cisin, Ph.D., Director, Social Research Group, George Washington University, 2401 Virginia Avenue, N.W., Washington, D. C. 20037.
Purpose: To provide background information for a national strategy to increase the number of quality adoptive placements available for Negro children.
Subjects: 100 respondents in five major cities; including members of child-placing agencies, adoptive parents, and members of the community.
Methods: The respondents were selected for their ability to provide information relevant to the adoptive placement of black children. Four social workers and a sociologist interviewed respondents at length to collect information regarding (1) incentives and deterrents to adoption, (2) promising approaches to increase the number of qualified adoptive homes for black children, and (3) successful and unsuccessful practices that should be promoted or discontinued in various programs. Data analysis will be quantitative and qualitative.
Duration: June 1970-February 1971.
Cooperating group(s): Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-RE-1 **UPROOTED CHILDREN 1957-1967: TRENDS IN NUMBER OF CHICAGO AREA CHILDREN IN FOSTER PLACEMENTS AND INSTITUTIONS**

Investigator(s): J. M. Fuller, Welfare Council of Metropolitan Chicago, 123 West Madison, Chicago, Illinois 60602.
Purpose: To identify trends in the number of children under various types of substitute care, and to identify changes in patterns of care in order to plan community programs for children.
Subjects: Chicago area children in foster homes and child welfare institutions.
Methods: Statistical records of voluntary and governmental child care agencies were tabulated and analyzed. Local studies, reports, correspondence, and interviews with selected personnel in the local child care field were reviewed.
Findings: Most reporting data are undiscriminating and of limited value. A better data system is needed. The number of children in child welfare institutions declined 25 percent, but the number of children in foster homes increased 43 percent. There was a shift from 28 percent in 1957 to 45 percent in 1967 in direct foster care by the government.
Duration: July 1969-June 1970.

27-RF-1 **COMMUNITY DAY CARE PROJECT**

Investigator(s): June Solnit Sale, M.S.W., Faculty Member, Pacific Oaks College, 714 West California Boulevard, Pasadena, California 91105.
Purpose: To determine by what means neighborhood family day care programs may be supported and made more effective for young children and their families.
Subjects: 20 family day care mothers who live in a racially mixed, low income, working class neighborhood of Pasadena.
Methods: Family day care mothers provide field supervision in their homes for students enrolled at Pacific Oaks College. One day a month the mother teaches a student in her home. On the second day of the same week the student cares for the children while the mother attends a meeting at the center. The staff has maintained a daily process record of each transaction within the project in order to analyze and describe the variables in neighborhood family day care.
Duration: August 1970-July 1971.

27-RH-1 **FUNCTIONING AND CONTROL: THEIR PREDICTION AND IMPLICATIONS FOR PRACTICE AND THEORY IN ABUSE AND NEGLECT**

Investigator(s): Morton I. Cohen, ACSW, Director of Research, Children's Protective Services, Massachusetts Society for the Prevention of Cruelty to Children, 43 Mt. Vernon Street, Boston, Massachusetts 02108.
Purpose: To analyze the predictor value of precontact data concerning a client's mode of interaction with caseworkers during the initial phase of service; to identify the types of interaction that occur and the best casework responses to them; and to explain theoretically the client's interaction and formulate an hypothesis of the cause of abuse and neglect.
Subjects: 13 families served by the Children's Protective Services.

Methods: Analysis of case records.
Findings: Precontact data produced excellent predictors. Abusive and neglectful parents differ in social functioning and interpersonal control. These factors are related to the etiology of abuse and neglect.
Duration: Completed.
Publications: Publication available from Department of Research, Children's Protective Services, Massachusetts Society for the Prevention of Cruelty to Children.

27-RH-2 **THE TRAPPED CHILD**

Investigator(s): Jack R. Parsons, Ph.D., Professor, School of Social Work, University of Washington, Seattle, Washington 98105.
Purpose: To create a better social climate and more resources for the unwanted child.
Subjects: Children of married couples, who are not wanted; and children of minority groups, who are free for adoption, but have not been adopted. The particular target subjects are children not wanted by their parents, but who are not released because of the social taboo that prohibits natural parents from surrendering their children.
Methods: The program utilizes estimates and reports on abused children relating to unwanted children of marriages, and statistics relating to black children placed in white homes (derived from the most comprehensive survey made to date).
Findings: Many children are trapped because of the present climate of fear and stigma that is held over natural parents, who do not want their children, but cannot release them for adoption. Negro children are not placed in white homes to the extent possible.
Duration: August 1970-January 1971.
Cooperating group(s): Boys and Girls Aid Society of Oregon.

27-RI-1 **COMMUNITY ORGANIZATION AND SERVICES TO IMPROVE FAMILY LIVING**

Investigator(s): Harris Chaiklin, Ph.D., Associate Professor, University of Maryland School of Social Work and Community Planning, 525 West Redwood Street, Baltimore, Maryland 21201; Geraldine Aronin, M.S.W., Chief, Community Relations; and Bette Stein, M.S.W., Project Director, Baltimore City Department of Public Welfare, 1510 Guilford Avenue, Baltimore, Maryland 21202.
Purpose: To supply additional money and services to improve family living of Baltimore families on public welfare: a demonstration project.
Subjects: 280 female-headed families representing 1,889 individuals. Mothers were primarily Negro (94 percent) and Protestant (91 percent). They averaged 35 years of age, 8 years of education, six children, and 6 years on public assistance.
Methods: Data on the families were collected and evaluated each year for 3 years. Each report compared the current and previous behavior of the remaining families in the cohort.
Findings: The families have stayed together, have utilized services made available to them, and are living in better housing. Only one family in 3 years had to be referred to the Child Care Division because of parental neglect.
Duration: June 1967-June 1970.

Cooperating group(s): U. S. Department of Health, Education, and Welfare; Community Relations Division, Baltimore City Department of Public Welfare.
Publications: *Public Welfare*, October, 1970, 28, 436-442; Chaiklin, Harris. A social service team for public welfare. *Social Work Practice, 1970*. New York: Columbia University Press, 1970.

27-RJ-1 **INSTITUTIONALIZATION OF CHILDREN AS A SOLUTION TO FAMILY CRISIS**

Investigator(s): Eliezer Jaffe, D.S.W., Senior Lecturer in Social Work, School of Social Welfare, The Hebrew University, Jerusalem, Israel.
Purpose: To explore the hypothesis that different people and professional groups tend to differentially use institution placement as a solution for family crisis involving children.
Subjects: Social work professionals, students, nurses, teachers, children of institution children, and other comparison groups.
Methods: A special scale consisting of 10 hypothetical situations of family crisis was presented to respondents along with a document soliciting background information regarding the interviewee. Respondents' solutions to the crisis situations were recorded and dichotomized into groups recommending either institution or substitute-own home care.
Findings: Findings clearly show that clinical training of respondents is significantly associated with a tendency to recommend or not to recommend institution placement.
Duration: June 1969-May 1970.
Cooperating group(s): School of Social Welfare, The Hebrew University.

27-RJ-2 **INTERPROFESSIONAL DIFFERENCES IN PERCEIVED DIMENSIONS OF DELINQUENT BEHAVIOR**

Investigator(s): Leon Vande Creek, M.A., Instructor, Tri-State College, Angola, Indiana 46703.
Purpose: To explore the differences in ratings of delinquents by different professional groups.
Subjects: 93 boys and 63 girls, ages 13 to 18, who are dependent, neglected, and/or delinquent wards of the State of Iowa at a state juvenile home.
Methods: Teachers, caseworkers, cottage fathers, and cottage mothers rated subjects on a 30-item checklist. These ratings were factor analyzed, rotated orthogonally. The four major factors were analyzed with a multiple discriminant analysis to differentiate among the rater groups.
Findings: Four factors were isolated: (1) unsocialized-aggressive, (2) socialized-delinquent, (3) over-inhibited, and (4) competent-intent. The last dimension, contributed primarily by teachers and cottage parents, has not been previously reported.
Duration: Summer 1969-summer 1970.
Cooperating group(s): State Juvenile Home, Toledo, Iowa; National Science Foundation.

27-RJ-3 **PROFESSIONALISM AS A FACTOR IN PROFESSIONAL DISTANCE FROM DELINQUENT CHILDREN**

Investigator(s): Eliezer Jaffe, D.S.W., Senior Lecturer in Social Work, School of Social Welfare, The Hebrew University, Jerusalem, Israel.
Purpose: To examine whether child welfare staff can be differentiated by degree of closeness to delinquent children in care.
Subjects: Staff of institutions for juvenile delinquents in Israel, probation officers, and after-care workers.
Methods: A number of scales were constructed or revised that measure authoritarianism, desire for friendship with delinquents, and background characteristics of interviewees. The research attempted to isolate variables which were correlated with high or low staff involvement with institutionalized delinquents.
Duration: June 1969-July 1970.
Cooperating group(s): School of Social Welfare, The Hebrew University.

27-RJ-4 **PREVENTION OF CULTURALLY DETERMINED RETARDATIONS AND DYSFUNCTIONS**

Investigator(s): Dorothy S. Huntington, Ph.D., Chief, Child Development Section, Children's Hospital of the District of Columbia, 2125 13th Street, N. W., Washington, D. C. 20009.
Purpose: To design intervention programs for disadvantaged infants.
Subjects: Infants, birth to age 3, in three residential institutions.
Methods: The children are studied from birth onward. Prescriptions for individual activities are determined by reviewing each child's areas of strength and weaknesses as assessed by the Bayley Developmental Scales.
Findings: Individualized intervention prevents the usual retardation observed in infants residing in institutions, but attention must be given to the entire institution context; e.g., institutional morale and implicit goals of staff.
Duration: January 1969-July 1971.

27-RK-1 **INTERVENTION AT EARLY AGE IN HIGH RISK FAMILIES**

Investigator(s): Eleanor Pavenstedt, M.D., Director, Intervention Program in Early Childhood, Tufts-Columbia Point Health Center, School of Medicine, Tufts University, 320 Mount Vernon Street, Dorchester, Massachusetts 02125.
Purpose: To train women to function as Family Change Agents who are concerned with the psychological welfare of all members of multiproblem low socioeconomic families.
Subjects: Six women trainees, ages 25 to 40, from low socioeconomic families; 15 families, who live in a low income housing development, and were referred by Health Center personnel; children of these families who are under 3 years of age; and a comparison group of children from a day care center.
Methods: Each trainee, under social worker supervision, works with two or three families and works half-time towards an Associate Degree in Early Childhood. Assessments of the program

include evaluation of changes in (1) the trainees, using questionnaires, attitude scales, supervisor evaluations, and observations; (2) the families, using trainee case records, questionnaires, and home visits; and (3) the children under 3, using standardized tests, observations, and interviews with the people who work with them.

Duration: July 1970-June 1973.

Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

HEALTH SERVICES

27-SA-1 ETHNIC AND PERSONAL FACTORS IN THE UTILIZATION OF PEDIATRIC HEALTH CARE FACILITIES

Investigator(s): Joel J. Alpert, M.D., Associate Professor of Pediatrics; and John Kosa, Ph.D., Associate Professor of Sociology, Harvard Medical School, Cambridge, Massachusetts, and Family Health Care Program, Children's Hospital Medical Center, 83 Francis Street, Boston, Massachusetts 02115.
Purpose: To determine ethnic and personal characteristics of low income families using pediatric health care facilities.
Subjects: 900 low income families who used the emergency room of Children's Hospital Medical Center, Boston from 1964 to 1968.
Methods: Questionnaire data, collected between 1964 and 1968, will be analyzed.
Duration: July 1969-December 1970.

27-SB-1 DEVELOPMENT OF CHILDREN'S HEALTH BEHAVIOR

Investigator(s): David S. Gochman, Ph.D., Research Associate, Department of Community Health Services, School of Public Health, University of Michigan, 122 South First Street, Ann Arbor, Michigan 48108.
Purpose: To determine if a general pattern exists in the emergence of health relevant behavior in children.
Subjects: Over 1,300 children in grades 3 and 7 from varied socioeconomic backgrounds in Flint, Michigan.
Methods: Data will be gathered in five semiannual group questionnaire sessions with the study sample. Included in the questionnaire are reliable measures of perceived vulnerability to health problems and health versus appearance in relation to dental attitudes. If a planned dental health program is developed, an experimental and a control class within each school will be used to evaluate the program.
Duration: April 1970-March 1973.
Cooperating group(s): School of Dentistry, University of Michigan; Genesee County Michigan Dental Society; National Center for Health Services Research and Development, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-SD-1 **HIGH RISK MOTHER AND HIGH RISK INFANT PROGRAM**

Investigator(s): Norman Kendall, M.D., Professor of Pediatrics and Director of Newborn Services, Temple University Health Services Center, 3401 North Broad Street, Philadelphia, Pennsylvania 19140.
Purpose: To provide comprehensive care for the high risk pregnant patient, particularly for the unmarried teenager, and for her infant.
Subjects: Pregnant women and their infants.
Methods: Data will be collected to evaluate this service program.
Duration: 1970-1975.
Cooperating group(s): Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-SD-2 **THERAPEUTIC ABORTIONS: SPECIAL REFERENCE TO TEENAGERS**

Investigator(s): Wallace C. Oppel, D.S.W., Assistant Professor of Maternal and Child Health; Sanford R. Wolf, M.D., Assistant Professor of Psychiatry; Irvin M. Cushner, M.D., Associate Professor of Gynecology and Obstetrics , Johns Hopkins University School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Maryland 21205; and Elizabeth Kelley, Sc.M., Director, Bureau of Bio-Statistics of the City of Baltimore.
Purpose: To develop data on the incidence of therapeutic abortions relative to live births in the city of Baltimore, and to explore whether abortion patients age 16 and under differ (in continued relationship with male consorts, plans for marriage, vocational and educational goals, and anomie) from a matched control group receiving prenatal services.
Subjects: A group of teenage therapeutic abortion patients and a control group of pregnant girls planning normal delivery.
Methods: Data for the incidence study will be derived from all the therapeutic abortions performed on women of all age groups who are residents and abort in the city of Baltimore. Experimental and control groups will be compared on age, socioeconomic status, parity, marital status, and length of pregnancy at the time of interview.
Duration: July 1970-February 1972.
Cooperating group(s): Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare.

27-SF-1 **FAMILY CENTERED PEDIATRICS IN U. S. HOSPITALS**

Investigator(s): Carol B. Hardgrove, Lecturer, Maternal Child Nursing, School of Nursing, University of California, San Francisco, California 94122.
Purpose: To describe programs that involve the family with the hospital staff in the care of the hospitalized child.
Methods: The programs of nine urban public hospitals and four smaller hospitals in cities across the country were studied. The following techniques were employed: (1) field trips for personal observation, (2) questionnaires to query what programs were currently underway, (3) research in

the literature available in this field, (4) personal interviews with innovators of programs and with staff responsible for carrying out the programs, (5) interviews with parents concerned, and (6) participation in the conference of the American Association for Child Care in Hospitals.
Findings: There is a growing and intensified interest in involving families in the care of the hospitalized child. However, the spectrum of problems is greater, and the solutions are more varied than previously anticipated.
Duration: August 1969-August 1970.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U. S. Department of Health, Education, and Welfare; University of California School of Nursing.

27-SF-2 **PROSPECTIVE STUDY OF NUTRITION AND INFECTIONS IN INDIA**

Investigator(s): C. E. Taylor, International Health, School of Public Health, Johns Hopkins University, 615 North Wolfe Street, Baltimore, Maryland 21205.
Purpose: To compare the relative impacts of pediatric care and improved nutrition on Indian children.
Subjects: Four groups of Punjab children, ages birth through 2 1/2 years.
Methods: Group I received improved pediatric care and improved nutrition; Groups II and III received either pediatric care or improved nutrition; and Group IV acted as a control group. Analyses of these programs were made in terms of differences in morbidity, including both incidence and duration, and differences in growth and development among the groups of children.
Findings: Some major differences in recording morbidity required changing the research design.
Duration: September 1969-August 1970.
Cooperating group(s): National Institute of Arthritis and Metabolic Diseases, Public Health Service, U. S. Department of Health, Education, and Welfare.

27-SG-1 **APPROACHES LEADING TO PREVENTION OF EMOTIONAL DISTURBANCE IN CHILDREN IN RURAL SETTINGS**

Investigator(s): A. J. Pappanikou, Ed.D., Professor of Education, School of Education, University of Connecticut, U-64, Storrs, Connecticut 06268.
Purpose: To prevent emotional disturbance in children by early intervention.
Subjects: 1,500 students in kindergarten through grade 12, who attend rural elementary schools.
Methods: The mental health educator, who promotes mental health in children and serves as a consultant to teachers, is a new public school role-model created for and basic to this program. Early intervention techniques at the behavioral level are emphasized to recycle the child from disturbing to positive behavior. Pre- and postdata have been collected on behavioral changes and changes in educational achievement.
Findings: Preliminary results indicate (1) teachers will accept and become involved with mental health educators, and (2) referral rates remain at or about the average expected; however, newer referrals do not require as long treatment periods by the program as some of the earlier referrals.
Duration: January 1968-June 1973.
Cooperating group(s): Regional District #11, Willimantic, Connecticut.

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